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REPORT RESUMES

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INFLUENCE OF IDENTITY PROCESSES ON STUDENT BEHAVIOR AND OCCUPATIONAL CHOICE.

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OCCUPATIONAL CHOICE, EDUCATIONAL ORIENTATION, AND STUDENT TRANSFER IN DIFFERENT UNIVERSITY PROGRAMS WERE STUDIED. QUESTIONNAIRE DATA WERE COLLECTED FROM MALE FRESHMEN ENTERING THREE DIFFERENT UNDERGRADUATE SCHOOLS--LIBERAL ARTS, BUSINESS, AND ENGINEERING. A SECOND QUESTIONNAIRE WAS ADMINISTERED TO THE SAME STUDENTS DURING THEIR SENIOR YEAR. USING DATA FROM THE TWO QUESTIONNAIRES, THE INVESTIGATORS EVALUATED CERTAIN CHANGES IN OUTLOOK THAT HAD TAKEN PLACE OVER THE 3-YEAR PEIOD. ANOTHER FOCUS OF THE STUDY WAS ON THOSE STUDENTS WHO TRANSFERRED FROM ENGINEERING TO EITHER LIBERAL ARTS OR BUSINESS DURING THE FRESHMAN YEAR AND ON THOSE STUDENTS WHO LEFT ENGINEERING AS VOLUNTARY OR INVOLUNTARY DROPOUTS. IN ADDITION TO THE QUESTIONNAIRES, INTERVIEWS WERE CONDUCTED WITH TRANSFER STUDENTS AND WITH STUDENTS WHO PERSISTED IN EACH OF THE THREE SCHOOLS. THE STUDENTS WHO TRANSFERRED APPEARED STRONGLY PREDISPOSED TO DO SO EVEN AT THE TIME OF ENTRANCE. FACTORS THAT PRECIPITATED DECISIONS TO TRANSFER WERE STUDIED. WITH THE AID OF THE SECOND QUESTIONNAIRE, THE INVESTIGATORS WERE ABLE TO DETERMINE HOW SUCCESSFUL STUDENTS WERE AFTER THEY HAD TRANSFERRED AND IN WHAT WAYS THEY HAD CHANGED OVER THE 3-YEAR PERIOD. IN ADDITION, A PARTIAL THEORY OF OCCUPATIONAL CHOICE WAS DEVELOPED BASED UPON THE CONCEPTS OF IDENTITY AND IDENTIFICATION. THE SIGNIFICANCE OF OCCUPATIONAL CHOICE AS ONE ASPECT OF IDENTITY WAS DISCUSSED. (RS)

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FINAL REPORT

PROJECT NO. 5-0809

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INFLUENCE OF IDENTITY PROCESSES ON STUDENT BEHAVIOR AND OCCUPATIONAL CHOICE

September, 1966

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INFLUENCE OF IDENTITY PROCESSES ON STUDENT BEHAVIOR AND OCCUPATIONAL CHOICE

Project No. 5-0809

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Gilbert K. Krulee, Robert O'Keefe, and Martin Goldberg

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Northwestern University

Evanston, Illinois

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TABLE OF CONTENTS

Chapter 1. Introduction 1

Chapter 2. Method 4

§1. The University Setting 4
§2. Design 7
§3. Procedures 10
§4. Analysis 13

Chapter 3. Inter-School Comparisons 17

§1. Family background 18
§2. Long-Range Values and Aspirations 23
§3. Career Plans and Expectations 28
§4. Curriculum Evaluations 41
§5. Personal Preferences and Values 47
§6. Discriminant Analysis 57

Chapter 4. Persistors, Transfers, and Dropouts 64

§1. Family background 65
§2. Long-Range Values and Aspirations 70
§3. Career Plans and Expectations 78
§4. Curriculum evaluations 89
§5. Personal preferences and values 98
§6. Discriminant analyses 105

Chapter 5. Analysis of Change: Liberal Arts, Business and Tech 111

§1. Long-range values and aspirations 112
§2. Career expectations and evaluations 123
§3. Educational evaluations 136
§4. Personal preferences and values 145
§5. Discriminant analyses 156

Chapter 6. Analysis of Change: Transfer Students 162

§1. The fate of transfer students 162
§2. Long-range values and aspirations 164
§3. Career expectations and evaluations 174
§4. Educational evaluations 185
§5. Personal preferences and values 194
§6. Fraternity membership among transfer students 203
§7. Comparisons with Liberal Arts and Business 203
§8. Discriminant analyses 215

Chapter 7. Identity Processes: A Statement of Theory 221

§1. Identity: An Overview 221
§2. Identification 222
§3. The past and the present 226
§4. Some educational implications 231

Chapter 8. Summary and Interpretation 235

§1. On choice and tentative commitment 235
§2. On changing one's commitment 238
§3. On the impact of an undergraduate education 246

References 253

CHAPTER ONE

INTRODUCTION

This study is concerned with a number of questions, all of which are of importance in the field of higher education. These questions have one major theme in common: they involve some major choice or decision that a student must make. The objective of the study is to improve our understanding of these choice processes and of some of the more important influences and determinants.

The first major question concerns that of occupational choice and choice of a program of study. We have had access to a number of college students, all of them male, who were about to enter three different undergraduate schools at a university and within each school a wide variety of programs of study. Two of the schools (Business and Engineering) are pre-professional and one might assume that preparation for a career is the primary determinant of program choice. The third school (The College of Liberal Arts and Science) is less clearly pre-professional and one might expect a wide range of reasons for choosing a program of study.

A second major question concerns the related problems of transfers from one school to another and dropouts*. A student who transfers must make a new decision, to abandon one course of action and to replace it with another. What prompts him to re-examine his original decision? What are some of the determinants of his new decision? Finally, what are some of the outcomes of the change?

To be more specific, we have studied only one set of transfer students:

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*Perhaps the most extensive review of the problems of retention and drop out is the study by Iffert (1957). Another valuable review of this topic has been made by Summerskill in Sanford (1962).

those who leave engineering and transfer either to the School of Business or the College of Liberal Arts. There are certain practical reasons for this particular choice. First of all, attrition among engineering students tends to be quite high and relatively higher than among students entering the other two schools. Most of this attrition is completed by the end of the sophomore year, at which time the entering freshman class will have been reduced by approximately half.

Secondly, approximately half of this loss is through transfer to another school on the same campus; another sizeable group of students are either dismissed or leave the campus voluntarily. Finally, the students who transfer are apparently interested only in a pair of alternatives on this particular campus: Business and Liberal Arts.

In addition to the students who transfer to another school on the same campus, there are those who leave either voluntarily or through academic dismissal. In what ways are they to be distinguished from those who transfer?

Finally, we have been interested in the changes that take place in students as a result of their experiences with a given program of study. For example, Jacob's review of studies on the impact of college on student values ended with some rather pessimistic conclusions (1957). One could infer from his review that college has scarcely any impact on student opinions and values. However, his views have been rather seriously criticized by Barton (1959) and Riesman (1958), partly because of his lack of attention to methodological issues.

We would like to approach this question of change in outlook and values in a somewhat different way. We will accept the idea that college is a setting in which students may be influenced in a variety of ways. Certainly, it is reasonable to assume that students are not equally open to influence in all areas of their lives. One would expect them to respond differentially—positively to some influences and indifferently or negatively to others. Thus, we would hope to study this differential process of influence, to come to some better understanding of how influence takes place, to identify some of the determinants of the outcomes, and certain areas in which students are indeed influenced by their college experiences.

CHAPTER TWO

METHOD

§1. The University Setting

Northwestern University is private and located in Evanston, Illinois, a suburb of Chicago. It is of moderate size, with an undergraduate enrollment of approximately 6000 students and a graduate enrollment of approximately 3000. It is coeducational and operates primarily as a residential institution: i.e., only a small fraction of students commute to school. The College of Arts and Sciences is located on the Evanston campus along with six professional schools: Business, Education, Journalism, Music, Speech, and The Technological Institute. In addition, there are graduate professional schools located on a separate campus in Chicago.

In this study, attention has been focused on only three of the seven undergraduate schools: Liberal Arts, Business, and The Technological Institute. If we restrict attention to male students only, then these are the three with the largest male enrollment. Although all three schools are officially coeducational, only one of them is coeducational in fact. Actually, the male enrollment in the College of Liberal Arts is usually less than half of that School's total enrollment, while the proportion of female students in either Business or Engineering is negligible.

Perhaps a word should be added to justify the limitation of this study to male undergraduates. We would assume that developmental processes for the two sexes are similar but far from identical. Occupational choice usually has a clear-cut meaning for males; its significance for females is much less obvious. We felt that, within the limitation of our resources, it would not be possible to study both sets of processes and therefore limited the scope of the study to male undergraduates.

It may also help to point out some relative differences in size, status, and student populations among the three schools. The College of Liberal Arts and Sciences is easily the largest; its total undergraduate enrollment exceeds three thousand students. Of the approximately 1000 freshmen entering this school each fall, nearly 400 are male. Next in size is the Technological Institute with a total undergraduate enrollment of over 700 and an entering freshman class of approximately 250. The School of Business is smaller, with an undergraduate enrollment of less than 600 and an entering freshman class of just over 100 students.

As for the quality of the students, some rudimentary comparisons can be made on the basis of College Board Scores, particularly for Verbal and Mathematical Aptitude. A comparison for some recent entering freshmen classes is contained in Table 2-1. In general, college board scores for students entering Liberal Arts and Engineering are quite high, with the scores for the students entering the School of Business somewhat lower. Not surprisingly, students in The Technological Institute are distinguished by quite high scores for mathematical aptitude. What is somewhat unexpected is that scores for verbal aptitude are quite high not only in the College of Liberal Arts but also in The Technological Institute.

We might also point out one bit of folk-lore that is not without validity. Students entering The Technological Institute tend to assume that it is the most difficult of the three schools. Moreover, they believe that, once having been accepted in engineering, they can later transfer to another school on the campus. Indeed, transfers from Tech to Business or Liberal Arts are quite numerous. Traffic in the other direction, into The Technological Institute from other schools on this campus, is negligible.

TABLE 2-1

A Comparison of Entering Freshmen* to Liberal Arts, Business, and Tech, based on College Board Scores and High School Class Rank

Year	Liberal Arts			Business			Tech		
	Verbal Apt.	Math Apt.	High School Rank (Percentile)	Verbal Apt.	Math Apt.	High School Rank (Percentile)	Verbal Apt.	Math Apt.	High School Rank (Percentile)
1961	574	583	85	531	593	82	563	658	88
1962	587	615	87	544	601	79	600	679	89
1963	602	624	86	567	621	84	609	691	90
1964	607	629	88	578	646	85	606	718	91
1965	611	634	88	572	648	85	609	690	90

*Both men and women are included.

As for relative status of the three schools, campus life is undoubtedly dominated by the College of Liberal Arts, partly by virtue of its size but also for reasons of custom and tradition. The Technological Institute has a rather special status. Its students are respected for their intelligence and sometimes criticized for their supposed lack of breadth and their relative lack of involvement in campus affairs.

82. Design

One major focus of the study is on occupational choice and the changes in outlook of students as a consequence of their educational experience. For this portion of the study, two questionnaires were designed, one to be administered at the beginning of the freshman year and a second during the senior year. An earlier form of this questionnaire has been used by Krulee and Nadler (1960,1961) in a similar study and some items are similar to ones used earlier by Rosenberg (1957). To be specific, the second questionnaire was administered approximately three years after the first. At the time of the second administration, students following a normal four-year program would be in their senior year. In Liberal Arts and Business, students do follow a conventional four-year program. However, The Technological Institute operates under a cooperative work-study program which takes five years. Although this program is voluntary, it is elected by approximately 75% of the engineering undergraduates. Thus, at the time of the second questionnaire administration, approximately 75% of engineering students would classify as "pre-seniors," and the remainder as seniors.

Copies of these questionnaires are included in Appendix I. Both questionnaires are designed for ease of administration. With minor exceptions, responses to the questions are pre-categorized. The first questionnaire covers the following types of information: family background, career outlooks and expectations, some personal values and objectives, and a variety of views about curriculum choice and educational plans. In addition, two brief personality scales were included. One of these is based upon Murray's personality variables of endocathection vs. exocathection and intraception vs. extraception (1938) and its use in the studies of personality assessment by Stern, Stein, and Bloom (1956). The second of these is the Vocational Preference Inventory, developed by Holland (1958,1960,1961), which is analyzed into eleven scales of personal values or outlook. The second questionnaire is substantially like the first in format. Certain questions on career outlook and curriculum evaluation were repeated in order to make possible some evaluation of changes over the three year period.

These questionnaires have one particular advantage. They can be readily administered by mail or to large groups of students. However, because of our interest in developmental processes, in questions of identity, and in an assessment of the meaning of the changes taking place in students, it seemed desirable to collect certain data which would involve use of partially structured interviews. Before describing these interviews, it will be useful to indicate the populations for which they were designed.

The interviews were used mainly in connection with the study of transfers from Engineering into Liberal Arts or Business. The students to be interviewed fall into two quasi-experimental and three control groups, as follows. At the beginning of the sophomore year, the names were obtained of all students, originally in Engineering, who had already transferred to either Liberal Arts or Business. For a given class, each transfer group contains approximately 15 students. For purposes of control, three samples were selected of students who had remained with their original school choices. Each sample consisted of 15 students and a suitable sample was obtained from each of the three schools involved in the study.

For these five groups, two interview schedules were designed, one to be administered in the sophomore year and one in the junior year. Copies of these interviews are included in Appendix II. In designing these interviews, we took as a point of departure three social systems within which each student must operate. There is a formal educational system within which he must function as a student vis-à-vis the faculty and various administrators. There is an informal peer system within which he functions as a member. Finally, there is his family within which he still functions as a son. The questions in each interview are organized around these three sets of role relationships. In the second interview, he was also asked about any changes in his functioning in each of these three systems.

To a limited extent, the interviews are more personal than the questionnaires. They are designed so as to obtain a more complete picture of what each student is like, to locate the sources of stress in his life, and to explore how he copes with those problems which confront him. A more complete personality description should be possible from these interview protocols. However, these are in no sense "depth" interviews. In carrying out the study, it was clear that we could not rely on the services of highly skilled or highly trained interviewers. Therefore, the interviews are oriented more toward surface behavior. Within the interviews, certain rating scales were occasionally included. Through their use certain readily quantifiable data could be obtained. In addition, the ratings were often used as a springboard for a more open-ended question, designed to clarify the reasons for a judgment recorded on each of the rating scales.

§3. Procedures.

Originally, the study was designed with the entering freshman class of 1961 in mind. Since the number of students who transfer in any one year is small, it seemed desirable to find some way of obtaining a larger number of students in each of the transfer groups. Accordingly, the complete study was replicated with the 1962 freshman class. Since the procedures used with the 1961 class were repeated for the 1962 class, with only minor modifications, we will describe in detail only the procedures employed with the 1961 class.

Freshman Questionnaire. The questionnaire had been discussed and reviewed with administrative representatives of each of the three cooperating schools in the summer of 1961. Next, a copy of the questionnaire, plus a covering letter and a stamped, self-addressed return envelope were sent to every male student about to enter the freshman class in the three schools under study. This material was mailed late in August, 1961. Freshmen were to come to Northwestern about September 15th for a freshman orientation week. The mailing was timed so that the questionnaire could be filled out at home and returned just before departing for Northwestern. In addition, a follow-up letter was sent early in September to all students who had not yet responded.

Because the study is based upon a series of repeated assessments, it was necessary to ask students to sign their questionnaires. Our assurances of anonymity were apparently satisfactory, for we experienced no difficulty in obtaining signatures to the questionnaires. In order to obtain as honest answers as possible, the covering letter was sent out over the signature of the project director, identified as a faculty member in The Technological

Institute. Students were told why the study was being undertaken and that there was no official connection with the University in any way, a fact which is, indeed, correct. In the covering letter, students were assured that participation in the study was voluntary. However, it is quite likely that an entering freshman may assume that any communication from Northwestern is at least quasi-official. After some preliminary work had been completed on the original questionnaires, all responses were key punched onto IBM cards which were used for all subsequent analyses.

Senior Questionnaire. In the fall of 1964, a revised list of names and addresses of all students in our original population was compiled and a new covering letter was prepared. Students were reminded of their earlier participation and of the purposes of the study. As before, they were asked to sign their questionnaires and were assured that the anonymity of their responses would be respected. The questionnaire was mailed, with the covering letter, and a stamped, self-addressed return envelope, late in November. Although a substantial number of returns were made before the Christmas vacation, we sent out a series of two follow-up letters (when necessary) during the winter quarter in order to increase the number of responses.

Sophomore and Junior Interviews. The necessary lists of students in the transfer groups were prepared in the summer of 1962. In fall 1962, students in the control groups were chosen by a random sample from a list of eligible students. In order to obtain cooperation, preliminary letters were written to each student who was to be interviewed. This letter described the purpose of the interview portion of the study and asked him to return a form on which he would indicate some possible times at which an interview might be scheduled. If the form was returned, then the prospective interviewee was contacted by telephone in order to make a definite appointment. If no response was received, then we attempted to contact the student directly in order to set up an appointment.

For the students in the transfer groups, we made every attempt to obtain interviews from all eligible students. With the three control groups, we contacted the 15 students who had been chosen by our sampling procedure. However, whenever we failed to obtain an interview from a student in the original control sample, we merely replaced his name with another until 15 interviews had been obtained for each of the three control groups. On the average, students were interviewed for one hour, although some interviews ran substantially longer. Similarly in fall 1963, we began again to contact all students in the transfer and control groups in order to make arrangements for a second interview. The interviews were carried out during the winter quarter. This second interview was shorter than the first, and, in general, could be completed in less than one hour.

For both interviews, a form was prepared on which the interviewer could record his immediate impressions at the interview. Copies of these forms are contained in Appendix II. Interviews were recorded by hand on specially prepared forms while the interview was being conducted. Interviewers would then read over the responses immediately after the completion of the interview in order to augment responses or add information that had not been previously recorded. Before the regular program of interviews was undertaken, each interviewer went through a training period in the use of a given interview schedule. Graduate students in Psychology, Education, or Industrial Engineering were employed throughout as interviewers.

Data Collection with the 1962 Freshman Class. The same sequence of data collection was repeated with the freshman class entering in 1962. For administrative reasons, one change had to be made in the procedure for administering the freshman questionnaire. It was not possible to mail out the questionnaire before the students arrived for the freshman orientation week. The questionnaires were mailed to students as they arrived on the campus for freshman orientation and the large majority had been returned prior to the opening of regular classes. For convenience, the number of respondents to each form of data collection is summarized in Table 2-2.

§4. Analysis.

In designing this study, an early commitment was made to collect a great deal of data from each of a large number of respondents. This leads to some critical choices that must be made concerning the use and analysis of these data. There are at least two "pure" strategies that might serve: to proceed empirically by examining the raw data as exhaustively as possible and place the greatest emphasis on those findings that are statistically significant, or alternatively, to begin with a well-developed theory, derive some testable hypotheses, and use the data primarily as a means of validating these specific hypotheses.

We have chosen to employ what might be termed a mixed strategy. In a series of chapters, the data will be reviewed in order to provide an empirical description of the differences among groups of students and of the changes taking place in these students. These descriptive chapters will be followed by a theoretical statement and an attempt to demonstrate that the theory is indeed relevant to the interpretation of these data.

Two other important decisions have been made about the analysis of the data, one concerning the use of statistical tests and a second concerning

TABLE 2-2

Number of Responses to Questionnaires and Interviews

	Questionnaires								
	LA			Business			Tech		
	Total Enrolled	Returns	% Returns	Total Enrolled	Returns	% Returns	Total Enrolled	Returns	% Returns
Freshmen	688	599	87.0	192	175	91.1	439	400	91.1
Seniors	421	220	52.2	173	108	62.4	213	115	54.0

	Freshmen			Seniors		
	Total Enrolled	Returns	% Returns	Total Enrolled	Returns	% Returns
Transfers to LA	46	44	93.5	35	33	94.5
Transfers to Business	31	30	96.7	22	19	86.5
Tech Dropouts	139	127	91.3	-	-	-
Tech Persistors	212	203	95.7	209	115	55.0

Interviews

	Total in Sample	Returns	% Returns
Transfers to LA	46	25	54.4
Transfers to Business	31	14	45.1
LA Persistors	30	27	90.0
Business Persistors	30	30	100.0
Tech Persistors	30	29	96.6

the use of the interview data. In reviewing the data, we have made no attempt to introduce a statistical test of significance at every stage of the discussion. However, the technique of linear discriminant analysis has been applied to these data and pertinent results are introduced into each of the descriptive chapters. Using this technique, one can demonstrate that it is indeed possible to distinguish among the different groups of students. In addition, the procedure has been used as the basis for a classification scheme and a test of significance has been applied to these classifications. In a sense, this test of significance provides a measure of the adequacy of the classification scheme and of our ability to distinguish among these groups of students.

As for the use of the questionnaire and interview data, we have made primary use of the questionnaire data in these descriptive chapters. These data are much easier to interpret. Moreover, we were much more successful in obtaining responses to the questionnaires than to the interviews. However, the interview data have been used qualitatively as a check on our interpretations of the questionnaires.

There are three unfortunate limitations to what has been done so far, although these limitations can be offset by some additional analyses which are currently underway. First of all, in the discriminant analyses we have used the BIMD program, BMD05M (Dixon, 1964, pp. 196-206), which was the only one available to us at the time. This program is limited to not more than 25 variables and to not more than 135 subjects in any one group. There were more than that number of subjects in some of our groups. Then, the size of certain groups had to be limited to 135 by random sampling from the total number of eligible subjects. In addition the program described by Cooley and Lohnes (1962) has certain desirable features that were not included in the BIMD program. For example, Cooley and Lohnes include a separate test of significance for each of the linear functions obtained so that one can immediately eliminate those functions that do not contribute significantly to the classification of the subjects. A revised discriminant analysis program is being written, which will eventually be applied to these data.

Secondly, we were much more successful in obtaining responses from freshmen than from seniors. Thus, we are not certain whether or not our description of the seniors who responded is actually representative of the total group of seniors. Using the freshmen data, it would be possible to compare those seniors who responded to those who did not and to assess to what extent the responding seniors are a representative sample of the total number of students. These comparisons have not yet been undertaken.

Finally, the limited responses from seniors leads to a complication in the assessment of change. Did the changes noted actually take place or are they merely a consequence of the seniors who respond being an unrepresentative sample of the total group? This difficulty in analysis could be avoided by limiting the study of change to those students who respond both as freshmen and as seniors. This form of analysis is currently underway. Note that by limiting the study of change to those students responding both as freshmen and seniors, we are only able to demonstrate whether or not this group of students has changed over the three year period. Whether or not these seniors are representative of the total group remains as a separate question.

CHAPTER THREE

INTER-SCHOOL COMPARISONS

In the questionnaire administered to freshmen, there are a variety of questions on family background, long-range values and aspirations, educational desires and expectations, and on certain personality dimensions. From these data, one can obtain a rather detailed description of the three individual schools and the differences among them. Moreover, choice of a school is usually associated with certain plans for a career and choice of an occupation. Thus, these data are also pertinent to questions of occupational choice.

In what follows, results from the sets of subjects, the 1961 and the 1962 freshmen classes, have been combined. In general, responses for each of the years were quite similar and there is no particular reason for separate analyses of the two sets of data. In addition, some comment should be made about the form of the analyses that have been included. In the first sections of this chapter, data will be used in a descriptive fashion, with no attempt to include tests of significance for each of the findings. No specific hypotheses have been made about results to be expected from each of the questions and little would be accomplished by the addition of these tests of significance.

On the other hand, one needs some form of analysis that would compare the three schools in some total sense. Accordingly, the technique of linear discriminant functions has been applied to these data and these results are included in a final section of the chapter.

Analyses for the College of Liberal Arts and the School of Business are based upon the total number of subjects entering those schools who completed the questionnaire. There are 599 respondents from the College of Liberal

Arts and 175 from the School of Business. However, for the Technological Institute, totals are based upon the 203 students who persist in their choice of engineering into the sophomore year. Results for an additional 76 students who transfer to Liberal Arts or Business during the first year and for the 126 students who drop out, either voluntarily or otherwise, will be included in a subsequent chapter.

§1. Family background.

Students were asked to indicate the social class to which their family belonged and could select either upper, middle, working, or lower class. Interestingly enough, literally no student ever chose the lowest of these categories. As one would expect, the bulk of the students in all schools describe themselves as middle-class (Table 3-1). Students from working-class backgrounds are more likely in Tech and from upper-class backgrounds in either Liberal Arts or Business.

In addition, students selecting Liberal Arts or Business are more likely to come from moderate size to large cities; students in Tech are somewhat more likely to come from smaller cities or towns with populations of 50,000 or less (Table 3-2). For example, 49.9% of the Liberal Arts students and 56.3% of the Business students come from cities of 50,000 and up, while only 40.8% of the Tech students fall into this same category.

Students were also asked about their father's occupation both when they were born and at the present time (Table 3-3). For father's present occupation, it is of interest to look at that single category for each school which contains the largest number of responses. For Liberal Arts, it is the category of "Professional"; for Business, it is "executive and administrative"; for Tech, it is "skilled and semi-skilled." In fact, if we ignore the category of "other" for occupation at time of birth, these

TABLE 3-1

Percent Distribution of Freshmen
Self-Perceptions of Socio-Economic Class

Social Class	College		
	LA	Business	Tech
Upper	14.1	17.2	4.9
Middle	76.9	73.6	77.0
Working	9.0	9.2	18.1

TABLE 3-2

Percent Distribution of Size of Home Towns for Freshmen

Size	College		
	LA	Business	Tech
Less than 5000	9.4	8.1	10.9
5000 - 15,000	15.8	12.6	16.9
15,000 - 50,000	24.9	23.0	30.4
50,000 - 200,000	19.6	20.7	19.9
Over 200,000	30.3	35.6	23.9

TABLE 3-3

Percent Distribution of Father's Occupation for Freshmen

Occupation	At time of birth			Present occupation		
	LA	Business	Tech	LA	Business	Tech
Agriculture	3.5	2.3	6.5	2.7	1.1	5.5
Skilled & Semi-skilled	15.3	12.7	24.1	9.9	11.5	25.4
Clerical - Sales	12.3	17.3	10.5	13.9	14.9	15.4
Business	7.9	8.1	6.5	14.7	13.8	10.9
Professional	28.4	9.3	11.1	31.2	8.0	9.9
Executive & Administrative	4.9	16.2	5.5	15.6	34.4	17.4
Engineering & Science	6.1	6.4	13.5	6.2	5.7	10.4
Deceased	0.2	0.0	0.0	3.2	6.9	3.9
Other	21.5	27.8	21.6	2.5	3.4	1.1

same three categories would have been selected. Actually, a significant number of fathers were in the armed services at the time of student's birth, and it is these responses that lead to relatively high percentages in the category of other.

These data on father's occupation take on added significance when we examine the responses to questions on the educational attainments of the student's mother and father (Table 3-4). In general, the parents of students in Liberal Arts have considerable educational attainments, while the parents of students in Tech have the least. For example, in Tech, 44.7% of the fathers have no more than a high school education, while the comparable percentages are 26.8% for Liberal Arts and 27.4% for Business. Similarly, 48% of the mothers of Tech students have no more than a high school education, while the comparable percentage is 39.3% for Liberal Arts. What is perhaps most striking is that 33% of the fathers of students in Liberal Arts hold advanced degrees in addition to a bachelor's degree, while advanced degrees are held by 15.4% of the fathers of Business students and 12.9% of the fathers of Tech students. In short, Liberal Arts students are quite likely to come from professional backgrounds, requiring considerable education. Business students are more likely from Business or Administrative backgrounds, requiring some college or a college degree, while the Tech students include a significant number whose fathers are skilled or semi-skilled workers. One might conclude that Tech students are more likely to be upwardly mobile than are students in either of the other two schools.

How do these results compare with other findings on the relationship between career choice and family background? In general, these data are consistent with the findings from a number of other studies, all of which

TABLE 3-4

Percent Distribution of Educational Backgrounds of Freshmen's Parents

College	Father's Education							Mother's Education						
	8th Grade	9th-11th	High School	Some College	Bachelor's degree	Master's or Prof. degree	Doctorate	8th Grade	9th-11th	High School	Some College	Bachelor's degree	Master's or Prof. degree	Doctorate
LA	3.9	7.8	15.1	21.3	19.0	24.2	8.8	3.9	5.2	30.2	32.1	21.8	6.2	0.7
Business	4.0	8.0	15.4	26.8	30.3	14.3	1.1	3.4	6.3	38.3	23.4	24.5	4.0	0.0
Tech	7.5	8.4	28.8	21.9	20.4	9.9	3.0	6.5	8.0	33.5	29.5	17.5	4.5	0.5

indicate that students from working class or lower-middle class backgrounds are more likely to choose careers in engineering or science rather than the professions or the humanities. See, for example, Knapp (1956), Sussman and Levine (1958), or Krulee and Nadler (1960). On the other hand, there are consequences to the fact that Northwestern is a private school with relatively high tuition. Relative to certain other engineering schools, Northwestern is relatively less attractive to students from working class or lower-middle class backgrounds.

To conclude this section, students were asked to describe how their family felt about their children going on to college. Response categories ranged from "It was naturally assumed the children would go to college" to "It was not assumed that any of the children would go to college" (Table 3-5). As one might expect, essentially all of these students were at least encouraged to go to college and, for the large majority, attendance at college was naturally assumed.

§2. Long-Range Values and Aspirations.

What do these students expect from life? What are their aspirations and expectations for themselves? From these data, we can obtain considerable insight into the long-range views of these students and the differences that characterize each of the three schools.

Students were asked about the standard of living they expected for themselves relative to that of their family's (Table 3-6). Tech students are most likely to indicate that they expect a higher standard of living (61.5%), although substantial numbers in LA and Business also expect an increased standard of living (49.6% and 44.1%, respectively). Approximately half of the students in LA (47.0%) and Business (53.6%) expect the

TABLE 3-5

Percent Distribution for Freshmen on Family's Orientation to Going to College

Orientation	College		
	LA	Business	Tech
Naturally assumed for all	86.0	86.0	76.5
Encouraged but not assumed	13.0	14.0	23.5
Not assumed for any	1.0	0.0	0.0

TABLE 3-6

Percent Distribution for Freshmen of Expected Standard of Living Relative to that of Family

Expected Standard	College		
	LA	Business	Tech
Higher	49.6	44.1	61.5
Same	47.0	53.6	38.0
Lower	3.4	2.3	0.5

TABLE 3-7

Percent Distribution for Freshmen of Expected Income Ten Years after Graduation

Expected Income	College		
	LA	Business	Tech
Less than $7,499	5.1	1.8	3.5
$ 7,500 - 9,999	7.7	10.7	12.1
$10,000 - 12,499	21.6	29.6	33.3
$12,500 - 14,999	11.3	11.8	15.7
$15,000 - 19,999	21.2	19.5	23.2
Over $20,000	33.1	26.6	12.1

same standard of living as that of their parents. Elsewhere students were asked what income they expected to earn ten years after their graduation from college (Table 3-7). Even though Tech students are most likely to expect higher standards of living, their absolute expectations for earnings are the lowest for the three schools. The median expectation of Tech students is $12,661; that of LA students is $16,028 and of Business students is $14,190. From this table, one surprising observation can be made: the distributions of expected incomes are bimodal for students in all three schools. Note, for example, the relatively small number of responses in the category $12,500-$14,999. Apparently, substantial numbers of students in all fields have rather modest expectations, while a significant number have high expectations for considerable financial success.

Elsewhere, the students were asked about the kinds of aspirations they held for themselves and whether they prefer to be independent, successful, or well-liked (Table 3-8). For all three schools, most students choose success over the other categories. Tech and Business students are somewhat more inclined to choose being well-liked over independence, while the opposite holds for students in Liberal Arts. When asked about the most valued activities in life, students reveal an almost total involvement in their families and their careers (Table 3-9). For each of six activities, students could indicate that it was their first, second, or third choice as most important. We note, first of all, that the three activities of religion, community affairs, and national or international affairs are scarcely chosen at all. Students in Tech and Business are more likely to rate involvement with family activities as more important than their careers, (55.3% vs. 33.5% for Tech and 57.1% vs. 33.1% for Business), while Liberal Arts students are more likely to place a higher value on their careers (43.5% vs. 46.4%).

TABLE 3-8

Percent Distribution for Freshmen of Student's Aspirations

Aspiration	College		
	LA	Business	Tech
Independent	31.4	22.6	25.9
Successful	43.4	45.1	43.7
Well-Liked	25.2	32.4	30.4

TABLE 3-9

Percent Distribution for Freshmen Views of the Most Valued Activities in Life

College	Activity											
	Career				Family				Recreation			
	1st	2nd	3rd	None	1st	2nd	3rd	None	1st	2nd	3rd	None
LA	43.5	42.2	9.5	4.7	46.4	35.4	6.7	11.5	1.0	8.7	41.1	49.3
Business	33.1	49.6	12.0	5.1	57.1	30.3	7.4	5.1	3.4	9.1	50.3	37.2
Tech	33.5	53.4	11.3	1.8	55.3	26.1	8.9	9.8	4.4	9.3	45.0	41.3

College	Activity											
	Religion				Community Affairs				Nat. or Internat. Affairs			
	1st	2nd	3rd	None	1st	2nd	3rd	None	1st	2nd	3rd	None
LA	3.2	4.7	13.4	78.7	0.2	2.4	13.7	83.6	3.2	4.5	12.4	78.0
Business	2.9	6.3	10.9	80.0	0.0	4.0	10.9	85.1	2.9	0.6	9.1	87.4
Tech	5.4	3.4	16.2	75.0	0.0	0.5	10.3	89.2	1.5	4.9	8.4	85.1

In one additional question, students were asked about those factors that influenced their decisions to go to college (Table 3-10). For each factor, they could indicate "great influence," "some influence," or "none." Thus, all factors can conceivably be rated as highly influential. From these responses, one notes again how important it is for these students to prepare themselves for a career and a profession. Students in all three schools place the highest weight on the attainment of professional skills. Considerable importance is placed on an intrinsic interest in the field. For two of the factors, there are rather interesting differences among the three schools. From their ratings of "general intellectual growth," it is apparent that the Liberal Arts students place some importance on this factor (35.4% indicate great influence); the response from Business students is less (29.8%) and is lowest from Tech students (18.5%). Coupled with the data on social class and family background, one might conjecture that Tech students are too much concerned with mobility to enjoy the luxury of an education for its own sake. However, Liberal Arts students may be more likely to take for granted that some reasonable status in life will be achieved and to value education as an end in itself. These conjectures are borne out by the responses to the factor of avoiding a low-level job. This factor has great influence for only 39.8% of the Liberal Arts students. However, 60.5% of the Business students and 58.0% of the Tech students view this factor as of great importance.

§3. Career Plans and Expectations.

In a series of three questions, responses to which were not precategorized, students were asked first, about the ideal job they hoped for when they first began to work, second, about the kind of starting position they

TABLE 3-10

Percent Distribution for Freshmen on Factors Influencing the Decision to Attend College

College	Factor											
	Gain Professional Skills			Intrinsic Interest in Learning in My Field			General Intellectual Growth			Avoid Low-Level Job		
				Influence			Influence			Influence		
	Great	Some	None	Great	Some	None	Great	Some	None	Great	Some	None
LA	84.5	14.5	1.0	59.7	33.7	6.6	35.4	42.4	22.2	39.8	32.1	28.1
Business	81.6	18.0	0.4	49.5	48.1	2.4	29.8	54.7	15.5	60.5	28.6	10.9
Tech	91.0	8.5	0.5	59.4	37.4	3.2	18.5	49.5	32.0	58.0	30.9	11.1

expected realistically, and, finally, about the type of position to which they aspired at the peak of their careers. As one might expect, responses to these questions make clear the close relationship between choice of a school (or curriculum) and the occupational consequences. There is relatively little overlap to the choices among the three schools. In order to analyze these data, responses were categorized into a set of twenty occupational classifications (Table 3-11). One rather unexpected finding is obtained from the responses of the Liberal Arts students. The majority of these students concentrate their choices into two fields: medicine (including dentistry) and law. Indeed, this finding holds for ideal position upon graduation, realistic expectation, and at the peak of one's career. Clearly, these are professions within which one remains throughout his active career. We will note subsequently that this stability over time is not characteristic of engineering. A small number of Liberal Arts students plan teaching careers upon graduation (7.4%) and 6.9% expect to continue in teaching at the peak of their careers. Among Liberal Arts students, relatively few students expect careers in basic or applied research. Upon graduation, 6.5% of the students desire such positions, while this percentage decreases to at the peak of their careers.

Looking at responses from the Tech students, it is apparent that students tend to think of engineering as a relatively undifferentiated field, for they make relatively few choices that fall within the specialized fields of engineering. For example, ideally upon graduation 18.7% indicate engineering, without specification. The total of all responses for the five specialized fields of engineering is only 20.8%. Expectations upon graduation are even more striking. While 32.5% expect a position in engineering without specification, the total of responses for the five specialized fields is

TABLE 3-11

Percent Distribution for Career Aspirations of Freshmen

Position	Liberal Arts		
	Ideally upon graduation	Realistically upon graduation	At peak of career
Management	7.0	5.3	17.4
Teaching	7.4	8.2	6.9
Basic Research	4.0	3.3	3.0
Applied Research	2.5	1.7	1.3
Physician or Dentist	43.1	40.8	40.1
Lawyer	15.4	12.7	10.7
Armed Services	2.2	4.5	1.5
Undecided	10.5	13.5	12.9
Other	7.9	10.0	16.2
	Business		
Management	36.0	25.2	68.6
Production	2.3	2.8	0.6
Sales	8.6	9.7	1.2
Lawyer	16.4	11.4	11.4
Accounting or Finance	14.9	14.3	4.0
Armed Services	1.1	4.0	1.1
Undecided	14.8	25.7	8.0
Other	5.9	6.9	5.1
	Tech		
Management	11.3	2.5	60.6
Equipment Design	3.0	2.9	2.5
Basic Research	5.9	2.0	4.9
Applied Research	15.3	11.3	8.9
Engineer (unspecified)	18.7	32.5	3.9
Chemical Engineer	6.9	5.9	0.5
Civil Engineer	3.5	2.5	0.5
Electrical Engineer	6.4	6.9	1.0
Industrial Engineer	2.0	1.5	0.5
Mechanical Engineer	2.0	3.0	0.5
Armed Services	2.5	6.4	1.0
Undecided	10.9	13.8	4.9
Other	11.6	8.8	10.3

only 19.8%.

Significant numbers of Tech students are interested in careers in basic or applied research. While Liberal Arts students are more likely to choose basic research over applied, the reverse holds for the Tech students. It is of interest to observe the relative stability to these choices over time. Ideally upon graduation 21.2% of these students desire careers in either basic or applied research. At the peak of these careers, there are still 13.8% of the choices within these two categories. By way of contrast, let us consider how stable are the choices for engineering. Ideally upon graduation, 39.5% of these students desire a position in some way connected with engineering. At the peak of one's career, choices within engineering have decreased to 6.9%. What do engineers expect to do at the peak of their careers? They expect to be engaged in management or administration, for the percentage falling in this category rises to 60.6%.

Students in the School of Business show a somewhat similar pattern of responses. It is also interesting to examine the frequency of choices for certain specialized fields in Business (marketing, finance, accounting, sales, etc.). Accounting or finance receive a substantial number of choices while a somewhat smaller number indicate a preference for a career in sales. However, at the peak of one's career, the percent choosing these specialized fields has decreased considerably. Presumably, students expect these particular careers to lead eventually into a position in management. One rather unexpected choice is that a substantial number of students in Business intend to enter the legal profession. One also notes certain changes to the career choices of Business students over the life of their careers. Whereas 36.0% want careers in management upon graduation, this figure rises to 68.6% at the peak of their careers.

Certain general observations may be made on the basis of the data contained in this table. One notes an apparent movement into positions of management over time for students in all three schools. Although this finding is most striking for students in Business and Technology, it also holds to a more limited degree for students in Liberal Arts. Secondly, one infers that progress within a career often means movement from one field of endeavor to another, as when the engineers expect to move from engineering per se into management. On the other hand, there are certain individuals who expect to remain identified with the same profession throughout their careers. Most typically, these are individuals who choose the well-defined professions of medicine, law, or dentistry. However, careers in teaching or basic and applied research appear to involve a somewhat similar continuity over time. Finally, one is struck by the large percentage of choices for medicine and law made by students in Liberal Arts.

In order to probe in more detail the students' views about their careers, we asked students about what an ideal job ought to be like and, using the same categories, realistically what they expected it to be like. Results to this pair of questions are contained in Table 3-12. For each category, students could give three levels of response, high, medium, or low. For convenience, only the responses of highly important or highly characteristic are included in this table. As an aid to interpretation of these data, rank orderings of these characteristics are summarized in Table 3-13, with a rank of "1" being the highest and "10" the lowest.

Ideally, the Liberal Arts students give their four highest choices to "a chance to use my abilities," "an opportunity to help others," "provide a stable secure future," and a "chance to work with people." The Business students also show "a chance to use my abilities" as the first ranked choice. In second rank is "a stable, secure future." The next two are "a chance to

TABLE 3-12

Percent Distribution for Freshman Views of the "Ideal" Job and of Their Realistic Expectations*

Job Characteristic	College								
	LA			Business			Tech		
	I	R	I - R	I	R	I - R	I	R	I - R
Chance to use my abilities	88.1	68.6	+19.5	83.0	45.6	+36.4	90.0	62.6	+27.4
Chance to earn a good deal of money	39.4	40.9	- 1.5	66.4	41.6	+24.8	38.9	27.1	+11.8
Permit me to be original and creative	52.4	24.5	+27.9	48.0	20.0	+28.0	62.5	36.0	+26.5
Give me status and prestige	25.2	35.7	-10.5	34.3	20.5	+13.8	13.3	4.8	+ 8.5
Chance to work with people	58.0	61.0	- 3.0	57.7	48.0	+ 9.7	17.2	14.3	+ 2.9
Provide a stable, secure future	63.3	58.0	+ 5.3	76.0	50.9	+25.1	66.5	52.8	+13.7
Leave me free of supervision	49.7	29.7	+20.0	52.0	21.2	+30.8	46.9	10.8	+36.1
Chance to exercise leadership	41.1	24.4	+16.7	64.6	38.3	+26.3	36.9	18.2	+18.7
Chance for adventure	29.4	14.4	+15.0	29.7	11.4	+18.3	40.4	14.3	+26.1
Opportunity to help others	66.8	63.6	+ 3.2	45.6	22.3	+23.3	38.0	19.2	+18.8

*Note: Column "I" summarizes what would be highly important of an Ideal position; column "R" what they expect realistically as highly characteristic.

TABLE 3-13

Rank Orderings for Freshman Views of the "Ideal" Job and of Their Realistic Expectations

Job Characteristic	College					
	LA		Business		Tech	
	I	R	I	R	I	R
Chance to use my abilities	1	1	1	3	1	1
Chance to earn a good deal of money	8	5	3	4	6	4
Permit me to be original and creative	5	8.5	7	8.5	3	3
Give me status and prestige	10	6	9	8.5	10	9
Chance to work with people	4	3	5	2	9	7.5
Provide a stable, secure future	3	4	2	1	2	2
Leave me free of supervision	6	7	6	7	4	10
Chance to exercise leadership	7	8.5	4	5	8	6
Chance for adventure	9	10	10	10	5	7.5
Opportunity to help others	2	2	8	6	7	5

earn a good deal of money" and a "chance to exercise leadership." Again the Tech students place in the first rank "a chance to use my abilities." The next three are "a stable secure future," "permit me to be original and creative," and be "free of supervision."

Those three choices that are lowest in rank are also worth examining. For Liberal Arts, they are "status and prestige," "chance for adventure," and "chance to earn money." For Business students, these are "chance for adventure," "status and prestige," and "an opportunity to help others." For Tech, they are "status and prestige," "chance to work with people," and a "chance to exercise leadership."

We note that everyone wants a chance to use their abilities and most claim to be relatively uninterested in status. For the Liberal Arts students, there is the strong theme of working with people or of being of help. The Business students are more concerned with rewards and the Tech students want an opportunity to be original and to be free of supervision.

One can also compare the percentages in the ideal column vs. the comparable percentage on realistic expectations and these obtained differences are also summarized in Table 3-12. Note that a positive difference in a sense implies the expectation that one's ideal choices will not be realized while a negative difference indicates that realistic expectations exceed the ideal. Liberal Arts students expect that returns in status and prestige will be more than met, that the desire for security, money, helping others and working with people will be substantially satisfied, but that the chance to use their abilities, to be creative, to be free of supervision, or to exercise leadership will all be undersatisfied. The Business students appear to be more pessimistic. For every category, the realistic percentages are ten to almost forty points lower than their ideal choices. The Tech students show a somewhat similar degree of pessimism. Although ideal and realistic percentages are approximately equal for the categories of status and prestige and a chance to work with people, all other realistic percentages are substantially less than the ideal choices.

One might propose the following interpretation. The Business and Tech students undoubtedly expect to be members of organizations. As "organization men," there will be rewards; but one can expect substantial limits on what one can do and the freedom one will have. In Liberal Arts, many students plan careers in the professions: medicine, law, and teaching. Perhaps they are less likely to see themselves as organization-bound. At the very least, these are high status professions, with opportunities to help and to enjoy financial rewards. Even these students expect limits on their opportunities to be creative and to be restricted somewhat by some form of institutional constraint.

Along similar lines, students were asked to indicate those qualities essential for success in one's chosen field (Table 3-14). One can interpret these responses as the student's image of his chosen occupational role and of the demands placed upon it. For convenience in interpretation, we have divided these seventeen qualities into four groups, labelled "Personal abilities," "Acquired abilities and Effort," "Interpersonal skills," and "Favorable Events in the Environment." These groupings of items are summarized in Table 3-15. From these groupings, we note certain patterns to the responses from students in each school. The Business students place a uniformly high emphasis on qualities that involve interpersonal skills and in general they place higher emphasis on these skills than do students in the remaining two schools. Also, the Business students are more concerned with their environment being favorably inclined. Relatively speaking, they

TABLE 3-14

Percentage Distribution for Freshmen on Qualities
Essential for Success in One's Chosen Field

Quality	College		
	LA	Business	Tech
1. Ability to express yourself	74.9	88.6	83.5
2. Special Talent or Aptitude	52.9	43.5	60.6
3. Luck	10.2	16.6	7.9
4. Leadership Ability	37.4	65.9	42.0
5. Ability to get people to like you	60.6	71.0	36.5
6. Understanding people	82.6	82.0	52.9
7. Good grounding in basic theory	61.0	44.6	87.0
8. Practical knowledge of facts in field	84.4	87.0	85.5
9. Ability to persuade	48.7	66.5	43.5
10. Devotion to work	85.2	70.5	71.1
11. High degree of intelligence	45.5	21.7	40.0
12. Knowledge of special techniques	51.1	26.9	46.9
13. Hard work	88.5	80.6	88.0
14. Knowing influential people	12.7	29.6	7.9
15. Social poise	25.7	46.4	13.8
16. Having capital or access to it	14.2	30.3	9.9
17. Administrative ability	40.2	82.5	54.9

TABLE 3-15

Qualities Essential for Success Organized Into Four Groupings

A. Personal Abilities

1. Ability to express yourself
2. Special talent or aptitude
11. High degree of intelligence

B. Acquired Abilities and Effort

7. Good grounding in basic theory
8. Practical knowledge of facts in field
10. Devotion to work
12. Knowledge of special techniques
13. Hard work

C. Interpersonal Skills

4. Leadership ability
5. Ability to get people to like you
6. Understanding people
9. Ability to persuade
15. Social poise
17. Administrative ability

D. Favorable Events in the Environment

3. Luck
14. Knowing influential people
16. Having capital or access to it

place less reliance on either personal abilities (included intelligence) or on acquired abilities. Significantly enough, the one acquired ability that they rate highly — practical knowledge — is not necessarily acquired through formal education but rather through occupational experiences.

The Tech students are also relatively easy to categorize. Of the three schools, they give the lowest weight to interpersonal skills or to favorable events in the environment. They place the highest weight on their intrinsic and acquired abilities as well as on devotion to work and hard work. By implication, an engineer will be judged by what he is and by his ability to perform on problems. It is of some interest to note that these students are somewhat reluctant to claim that high intelligence is essential. Perhaps it is more modest and more acceptable to admit to a special talent or aptitude than to the more general quality of high intelligence.

Students in Liberal Arts are somewhat harder to describe. They resemble the Tech students in their emphasis on personal and acquired abilities. They place moderate importance on some of the qualities under the remaining two headings of Interpersonal Skill and Favorable Events in the Environment.

We note that students in all three colleges believe that the ability to express yourself is essential to success but do they all attach the same meaning to the possession of this ability? Undoubtedly Business students view expressing oneself as an administrative skill and as essential for influence and persuasion. From the lower ratings given by Tech students to certain interpersonal skills, we might propose that these latter students do not view the ability to express in the context of persuasion and influence. Perhaps expressing oneself is more a matter of knowledge, of intelligence, of clarity of organization, and mostly dependent upon a firm understanding of one's subject matter.

Elsewhere, students were asked how they felt about their chosen careers and to indicate how strongly they felt committed to it (Table 3-16). Tech and Liberal Arts students are more likely to indicate that it is the only really satisfying career for them than are Business students. While most students say that it is one of several possibilities, some students express significant reservations: 17.3% in Business, 10.5% in Tech, and only 6.3% in Liberal Arts.

§4. Curriculum Evaluations.

In one section of the questionnaire, students were asked a series of questions about their chosen programs of study. For this section, thirteen attributes that might characterize any curriculum to a greater or lesser degree were selected. Each attribute was defined by short descriptive phrases at either extreme of an eight-point rating scale. The students were first asked about their ideal in curricula. Each student circled the number on the scale which best represented what he felt would be most desirable.

Before discussing the results, we should point out in what sense these students have already chosen a curriculum. For all three schools, only a general program of study is available in the freshman year. Thus, officially, students were not yet enrolled in a departmental program. On the questionnaire, students were asked to indicate the particular program they were planning to pursue. Most students gave definite answers to this question. Only 6% of the students in Engineering and Liberal Arts indicated that they were undecided, although 31% of those in Business expressed an inability to select a definite response. We are assuming that students answered these questions about curriculum in terms of the tentative choices that they had already made.

The thirteen attributes fall into three broad categories that pertain

TABLE 3-16

Percentage Distribution for Freshmen on Feelings about Their Chosen Career

Feelings	College		
	LA	Business	Tech
Only one really satisfying	30.5	16.1	23.0
One of several	63.0	66.6	66.0
Not the most satisfying	3.9	9.2	4.0
Chosen without considering whether others might be more satisfying	2.4	8.1	6.5

to (1) characteristics of the subject matter included in their program (ratings 1, 2, 5, 12, 13); (2) certain subjects and skills that go beyond preparation for a vocation or profession (ratings 4, 7, 9, 10, and 11); and (3) the administration and organization of the curriculum itself (ratings 3, 6, and 8). Separate tabulations of median responses for each school have been prepared and are summarized in Table 3-17. In this Table each attribute is described by the pair of phrases with which it was defined. The left-hand member of the pair always refers to the low end and the right-hand member to the high end of the rating scale. Median scores can range from a low of 0.5 to a high of 7.5.

Restricting our attention to the engineering students and the subject matter to be included in their program, they desire of an ideal curriculum that it not be too theoretical, that it be moderately broad in scope, and that there be moderate emphasis on the ability to think logically and abstractly. They would like a strong orientation towards new developments, and somewhat of an opportunity to specialize. Of the subjects and skills that go beyond professional preparation, they have a moderate interest in preparation for the responsibilities of citizenship. In addition, they hope that the emphasis on humanistic subjects, those of broad and general interest, will not be excessive and would prefer a program that is predominately professional in orientation.

For those ratings on the administration and organization of the curriculum, they would like considerable freedom of choice among alternative courses, a program that is difficult enough to require real effort, and one in which a considerable effort is made to ensure that the separate courses will fit together into a larger whole.

How do these views of an ideal curriculum compare to those held by

TABLE 3-17

Freshmen Views of Their Chosen Curriculum: Ideally and Realistically

Curriculum Characteristic	College					
	LA		Business		Tech	
	I	R	I	R	I	R
1. Theory vs. Practice	4.77	4.17	5.37	4.60	4.29	3.55
2. Broad vs. direct relevance	3.13	2.89	3.22	3.15	3.20	3.19
3. Freedom of choice Yes -> No	2.29	3.87	2.32	3.39	2.89	4.74
4. Emphasis on citizenship No -> Yes	5.10	4.04	4.92	4.26	4.47	2.98
5. Thinking vs. Facts and Techniques	3.19	3.71	3.00	3.43	2.95	3.35
6. Difficult vs. Easy	2.28	1.78	2.36	2.02	2.77	1.64
7. Emphasis on Ability to Express Yes -> No	1.13	2.53	0.85	1.89	1.41	2.93
8. Emphasis on integration Yes -> No	2.52	3.17	2.36	3.17	2.35	3.21
9. Emphasis on understanding people Yes -> No	1.41	2.48	1.40	2.49	2.78	4.21
10. Emphasis on management Yes -> No	3.12	4.22	0.78	1.58	2.66	3.97
11. Technical vs. Humanities	4.43	4.10	4.34	3.66	3.17	2.70
12. Emphasis on new developments Yes -> No	2.41	3.24	2.31	3.02	2.41	3.34
13. Opportunity to specialize Yes -> No	3.50	3.56	3.38	2.97	3.20	3.08

students in the liberal arts? Liberal Arts students agree that the program should not be too theoretical. They also agree on the emphasis to be placed on breadth, on learning to think logically, on the importance of new developments, and on a moderate opportunity to specialize.

It is in the second set of characteristics, those subjects that go beyond direct preparation for a career, that liberal arts students differ from those in engineering. Although they also place a high value on the ability to communicate, they place greater importance on preparation for one's responsibility as a citizen, on learning to understand people, and on the broadly humanistic subjects. They are less interested than are the engineers in a program that will prepare them for management and administration.

With respect to the organization of the curriculum, the liberal arts students are a little more interested in freedom of choice and on the difficulty to be expected with their curriculum. They agree on the importance of some integration among all the courses making up a program of study.

Another set of comparisons can be made between the students in engineering and business. As far as the characteristics of the subject matter are concerned, the business students are in considerable agreement with the views held by those in engineering. However, they would prefer a somewhat more practical curriculum, with less emphasis on theory.

Again, not unlike the students in Liberal Arts, the views of the students in Business about subjects of a more general interest differ rather significantly from those in Engineering. They agree on the importance of the ability to communicate; but they desire greater emphasis on preparation for responsibilities as a citizen, on learning to understand people, and on the inclusion of liberal arts and humanistic subjects. Not surprisingly, they are the strongest in favor of a program that prepares one for management responsibilities, significantly more so than are the engineers. Under the organization of the curriculum, the students in Business hold views that do not differ particularly from those held by the engineering students. The business students are a little more concerned over freedom of choice among courses, but they want a reasonably difficult and a reasonably well integrated program of study.

After the students had finished their ratings for what would be ideal, they were also asked to rate the same attributes for what they expected in reality of their chosen programs of study (Table 3-17).

For the five attributes that relate to characteristics of the subject matter, students in all three schools expect only moderate discrepancies between their ideal view and what they expect realistically. In all schools students expect that the programs will be a little too theoretical, that there will be a little too much emphasis on facts and techniques of direct application, and that there will be insufficient emphasis on new developments in a given field. They expect an appropriate emphasis on breadth and on the opportunity to specialize, although in this latter category, the business students expect somewhat too much of an emphasis on specialization.

However, when students think of the subjects and skills that are of more general relevance and not directly related to professional preparation, they indicate greater discrepancies between their ideals and what they expect realistically. As we noted before, the direction of these discrepancies is the same for students in all three schools.

Students expect not enough opportunity to prepare for the responsibilities of citizenship, not enough emphasis on the ability to communicate effectively, too little emphasis on developing an understanding of people, and too little opportunity to prepare for responsibilities in management and administration. Students in Liberal Arts expect a sufficient opportunity to pursue subjects of broad and general interest (humanistic subjects), although students in the remaining two schools expect too little emphasis on this characteristic. Our over-all impression, based on this set of ratings, is that students in all three schools expect a program that will be rather narrowly professional in character and that some aims of a broad and liberal education will be compromised as a consequence.

When one reviews the ratings on organization and administration of the curriculum, one notes certain other discrepancies. Students express to a significant degree their view that they will have insufficient freedom for choice among electives. They expect that it will be difficult to see how separate courses fit together into a larger whole and, not surprisingly, they express their uneasiness that the programs will be more difficult than they believe would be desirable.

§5. Personal Preferences and Values.

The remaining items in the freshman questionnaire can all be reviewed under the heading of personal preferences and values. Students were asked to indicate how important it was to them to get ahead in life (Table 3-18). Not surprisingly, in all three colleges, over 90% of the students indicate that getting ahead is at least "fairly important." However, the Business school contains more students who feel that getting ahead is very important (73%) vs. only 55.5% in Liberal Arts and 47.6% in Tech. They were also asked to rate how important it was to them for their plans for the future to be known clearly in advance (Table 3-19). In all three schools, approximately 80% of the students claim that it is at least fairly important and there are essentially no differences among the three schools. Similarly,

TABLE 3-18

Percent Distribution for Freshmen on Importance of Getting Ahead in Life

Value	College		
	LA	Business	Tech
Very important	55.5	73.0	47.6
Fairly important	37.3	23.2	47.2
Not very important	6.3	3.5	4.5
Very unimportant	1.0	0.3	0.7

TABLE 3-19

Percent Distribution for Freshmen on Importance of Plans for Future Being Known Clearly in Advance

Value	College		
	LA	Business	Tech
Very important	25.9	27.4	23.8
Fairly important	56.0	55.9	57.0
Not very important	16.2	14.0	17.4
Very unimportant	1.9	2.7	1.8

students were asked how important it is to know how well you are doing in comparison to classmates. In all schools, most students claim that it is fairly important or very important and there are no differences in the pattern of responses from the three schools (Table 3-20).

In another series of questions, an attempt was made to assess the goal orientation of students or to give a simple characterization to each student's style of life. The categories used were originally suggested by Murray (1938, pp. 222-223) and make use of two dichotomous personality variables* of Extraception-Intraception and Exocathection-Endocathection. The first describes the direction of the person's interest, outward or inward, while the second refers to the classes of objects or ideas toward which these interests are directed. Using all combinations of direction and object of interest, Murray defined the following four personality types:

"1. Extraception - Exocathection: To adapt to the world as it stands; to be interested in tangible results; to be very practical; to amass a fortune; to secure a permanent position; to become a member of clubs and institutions; to be without illusions; to conserve established values; to work effectively with mechanical appliances."

"2. Intraception - Exocathection: To live imaginatively; to dramatize the self; to express one's sentiments and beliefs in action; to initiate and further progressive social movements; to speak against abuses; to propose reforms; to concoct new schemes, business ventures, political innovations; to be guided by a vision of the future; to seek adventure; to become involved in amorous affairs."

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*See, for a related application, Nadler and Krulee (1961).

TABLE 3-20

Importance for Freshmen of Knowing How Well You Are Doing in Comparison to Classmates

Value	College		
	LA	Business	Tech
Very important	31.9	29.5	29.9
Fairly important	48.6	54.0	55.3
Not very important	15.8	14.5	14.4
Very unimportant	3.7	3.0	0.4

TABLE 3-21

Percent Distribution for Freshmen on Four "Styles of Life"

Style	College		
	LA	Business	Tech
Man of Action	12.4	29.8	31.6
Social Reformer	9.0	7.0	1.0
Man of Thought	9.0	6.4	16.6
Artist, Dreamer	14.4	7.6	4.5
Mixed	55.2	49.2	46.3

"3. Extraception - Endocathection: to be interested in ideas and theories about substantial events (for example, physical sciences); to reflect and write about external occurrences and systems; history, economics, government, education; to collect data and think inductively."

"4. Intraception - Endocathection: to devote oneself to artistic or religious representations; to dream, brood, and introspect; to become absorbed in the attempt to resolve inner conflicts and spiritual dilemmas."

For convenience, we have labelled each of these four types with the following descriptive phrases: 1) Man of Action; 2) Social Reformer; 3) Man of Thought; and 4) Artist-Dreamer. A five-item scale was used as a basis for classification. Each item contains four choices, one for each of the possible personality types. If in answering these items a student chose three or more possibilities characteristic of a single type, he was classified as belonging to that type. Unfortunately, many students scattered their responses so that there were less than three items characteristic of any one type. These students were classified as "mixed." The results of this procedure are summarized in Table 3-21. Of the total number of students in all three schools, there were 19.5% classified as Man of Action, 6.9% as Social Reformer, 10.1% as Man of Thought, 11.2% as Artist-Dreamer, and the remaining 52.3% as mixed. However, the different types are unequally distributed among the three schools. Omitting the mixed category, Tech students are most likely to be classified as Man of Action (31.6%) although a substantial number are classed as Man of Thought (16.6%). In the Business school, the only classification with substantial number is that of Man of Action (29.8%). A small but approximately equal number of students falls into each of the three remaining categories. Turning to Liberal Arts, there is no single category outstanding. There is little variation in the numbers who fall into each of the categories, although the highest single category is that of Artist-Dreamer (14.4%). Thus, on the basis of these styles of life, there is one type that predominates in Business, two in Tech, while no one type predominates in Liberal Arts.

In another section of the questionnaire, attention was focused on the personal inclinations and preferences of the students in the three schools. Using a method developed by Dr. John L. Holland (1958,1960,1961) of the National Merit Scholarship Corporation, students were given a list of sixty-six occupations. For each of these they could indicate one of three responses: a) "occupations which interest or appeal," b) "occupations which you dislike or find uninteresting," or c) that they were "undecided about an occupation." Using a method developed by Dr. Holland, these items can be scored into eleven scales which are indicative of the personal preferences and values of each of the respondents. Finally, tabulations were made for the students in each of the schools. The results are summarized in Table 3-22 and give some insight into the kinds of people who chose a given school. Before discussing the results, we need to say a word about the organization of Table 3-22. Each of the eleven scales has been given a descriptive label to indicate the nature of the scale. Each of these labels marks the high end of the scale, so that a low score would imply a relative absence of that particular characteristic. For each scale, we have computed the median scores for all of the students in each of the schools. The median value is chosen so that half of the students in each group score on either side of the value. In every case, the medians could range from a low of 0.5 to 6.5. Finally, the eleven scales have been organized into three groupings under the headings of "Intellectual," "Interpersonal," and "Personal" orientations. Those scales listed under intellec-

TABLE 3-22

Personal Preferences and Values* of Freshmen

I. Intellectual Orientations	College		
	LA	Business	Tech
Practical and Realistic	2.10	2.56	3.18
Intellectual	4.08	2.76	4.26
Artistic	1.93	1.62	0.84
Conventional	2.53	4.35	3.09
II. Interpersonal Orientations			
Socially responsible	2.55	2.65	1.44
Enterprising	1.96	3.92	1.61
Aggressive	3.51	3.76	2.20
Status Seeking	4.36	4.32	2.79
III. Personal Orientations			
Conscientious and sociable	4.34	4.48	3.51
Interest in masculine activities	3.06	3.51	3.78
Withdrawn and over-controlled	1.29	2.59	1.15

*Median responses

tual concern characteristics of an individual's thought processes and interests; under interpersonal orientation are scales that describe an individual's relationship to society and to his social surroundings. The final three scales seem more related to characteristics of an individual's activities and behavior.

First of all, we can compare the engineering students to those in Liberal Arts. Under the heading of intellectual orientations, students in both groups are equally high on intellectual values. However, the engineering students are significantly more likely to be concerned with realistic affairs and with attempts to find solutions to problems of practical significance. Neither group places a very high value on artistic values, but the engineering students indicate much less interest than do those in Liberal Arts. The final scale under this heading is that of "conventional." The engineering students are somewhat more conforming and less independent than are those in Liberal Arts.

On all four of the interpersonal orientation scales the engineering students show lower median scores than do students in either of the other schools. For example, from their low score on "social responsibility," we would expect engineering students to be less concerned with what happens to others and with human affairs. They are slightly less enterprising than are those in Liberal Arts and rather significantly less aggressive towards others. Moreover, they are distinctly less concerned about their status in society or in the achievement of status. Finally, there is the heading of "Personal Orientations." The engineering students are moderately conscientious and sociable but less so than the students in Liberal Arts. They have a higher interest in masculine activities and are similar to the students in Liberal Arts in that neither group is particularly withdrawn or over-controlled. On the whole, the engineers seem to be characterized by a lack of involvement in their social surroundings.

What can be said to describe the students in the College of Business? Their interest in intellectual affairs is the lowest of the three groups. Their orientations are almost as practical as are those of the engineering students. They score as high on the artistic scale as do those in Liberal Arts although for neither of these schools is there particular emphasis placed on this orientation. Finally, the Business students seem to be significantly more conventional in their outlooks than the students in either of the other two schools.

As for their relationships to their environments, the Business students are as socially responsive as are the students in Liberal Arts, they are easily the most enterprising of the three groups, they are about as aggressive as the students in Liberal Arts and also indicate a strong interest in the achievement of a high status in society. In a sense, they are involved with their environment in order to achieve.

With respect to personal orientations, they are a highly conscientious and sociable group, with considerable interest in masculine activities. Unlike the other two schools, they appear to be somewhat more withdrawn and over-controlled.

There is one other way in which we can examine these scores on personal preferences and values. In Table 3-23, we have selected for each school the three scales with the highest values and the three with the lowest from amongst the eleven scales. These patterns of high and low choices are illuminating. For example, the students in Engineering and Liberal Arts both place high values on intellectual activities and conscientiousness. For the engineering students, the third of the high scores indicates their

TABLE 3-23

High and Low Values of Freshmen on the Personal Preference Scales

Three Highest Values

Tech	Liberal Arts	Business
Intellectual	Status Seeking	Conscientious
Masculine Activities	Conscientious	Status Seeking
Conscientious	Intellectual	Conventional

Three Lowest Values

Tech	Liberal Arts	Business
Artistic	Over-Controlled	Artistic
Over-Controlled	Practical and Realistic	Over-Controlled
Socially Responsible	Artistic	Socially Responsible

interest in masculine activities. By way of contrast for those in Liberal Arts, their highest value is for the achievement of a high status in society. The three high scores for the business students are quite different. They have a strong desire for status, but they are both highly conscientious and highly conventional in their orientations.

For the low scores, there is greater agreement among the three schools. All students place little value on artistic pursuits and show little tendency to be withdrawn or over-controlled. It is the students in Liberal Arts who place a relatively low value on being practical or realistic while students in the remaining two groups show little interest in the area of social responsibility.

§6. Discriminant Analysis.

In some respects, discriminant analysis is a procedure for testing the adequacy of data in classifying individuals into a fixed number of groups. In this case, individuals are to be classified as either students in LA, Business, or Tech. Since the computer program available to us — a modification of BMDO 05M (Dixon, 1965) — was limited to a maximum of 25 variables and a maximum of 135 subjects in each group, the analyses reported in this chapter are based on a random selection of 135 students from each of the pertinent populations. Two separate analyses will be described. In the first analysis, 24 variables have been used; these include the eleven personal preference scales (Table 3-22) and the thirteen scales describing a student's ideal view of his chosen curriculum (Table 3-17).

One result of this procedure is that two linear functions have been defined as the basis for a classification scheme. Each function is a linear combination of scores using the 24 variables and the two functions are mutually orthogonal. The derived sets of coefficients are summarized in Table 3-24. Secondly, this pair of functions has been used in order to classify each individual into either of the three groups. The results of this classification are contained in Table 3-25. From this table, one can immediately determine the accuracy with which students have been assigned among the groups. Of the 135 students actually entering LA, 66% have been correctly classified. The accuracy of classification for the Business students is 81% and of those who persist in Tech is 79%. In addition, means for each group on each of the discriminant functions have been calculated and these results are in Table 3-25.

As part of this particular computer program a single test of significance for evaluating the classification scheme has been computed, the generalized Mahalanobis D-Square. The specific hypothesis tested is that the mean values for all three groups are the same when these means are considered as a vector in the space formed by the discriminant functions. For this particular analysis, the value obtained is 548, which may be interpreted as a Chi-Square value with 48 degrees of freedom, a result which is significant at $p < .001$.

A second analysis, based again upon the eleven personal preference scales plus the thirteen scales describing a student's realistic expectations from his chosen curriculum, has also been completed. The coefficients for the pair of linear discriminant functions obtained are contained in Table 3-26. Data on the adequacy of the classification scheme using this set of 24 variables are summarized in Table 3-27, along with means for each group in each of the discriminant functions. Using this set of scales, LA students are classified with an accuracy of 71%; Business students and Tech persistors

TABLE 3-24

Discriminant Function Coefficients Using Data on Eleven Scales of Personal Preferences and Thirteen on Ideal Evaluations of the Curriculum

Variable	Function Coefficients	
	I	II
Realistic	1.20	1.26
Intellectual	2.57	2.15
Social Responsibility	1.26	1.03
Conventional	0.42	1.03
Enterprising	0.12	0.95
Artistic	1.24	1.15
Aggressive	-0.16	-0.55
Conscientious	0.77	0.55
Masculine	2.00	2.13
Status	1.89	1.76
Withdrawn and Over-Controlled	0.90	1.33
Theory vs. Practice	0.99	0.98
Broad vs. Direct Relevance	0.01	-0.02
Freedom of Choice	1.89	1.87
Emphasis on Citizenship	0.86	0.72
Thinking vs. Facts and Techniques	0.51	0.67
Difficult vs. Easy	1.48	1.66
Emphasis on Ability to Express	0.89	0.75
Emphasis on Integration	0.49	0.71
Emphasis on Understanding People	0.09	-0.10
Emphasis on Management	0.64	0.64
Technical vs. Humanities	0.59	0.67
Emphasis on New Developments	0.45	0.16
Opportunity to Specialize	1.36	1.39
Constant	-36.79	-37.39

TABLE 3-25

Classification of Freshmen Persistors Using Functions from Table 3-24

Actual Group	Predicted Group			
	LA	Business	Tech	Total
LA	89	19	27	135
Business	13	109	13	135
Tech	14	14	107	135

	Group Means on Discriminant Functions	
	I	II
LA	36.79	34.80
Business	35.40	37.39
Tech	31.94	31.17

TABLE 3-26

Discriminant Function Coefficients Using Data on Eleven Scales of Personal Preferences and Thirteen on Realistic Expectations of the Curriculum

Variable	Function Coefficients	
	I	II
Realistic	1.62	1.59
Intellectual	3.05	2.68
Social Responsibility	1.56	1.25
Conventional	0.23	0.81
Enterprising	0.24	1.07
Artistic	1.43	1.30
Aggressive	-0.38	-0.76
Conscientious	0.91	0.67
Masculine	2.17	2.23
Status	2.06	1.91
Withdrawn and Over-Controlled	1.49	1.98
Theory vs. Practice	0.48	0.27
Broad vs. Direct Relevance	0.76	0.84
Freedom of Choice	0.94	1.03
Emphasis on Citizenship	1.27	1.24
Thinking vs. Facts and Techniques	0.46	0.61
Difficult vs. Easy	1.94	2.03
Emphasis on Ability to Express	1.32	1.25
Emphasis on Integration	-0.72	-0.35
Emphasis on Understanding People	0.12	0.22
Emphasis on Management	0.24	0.06
Technical vs. Humanities	0.63	0.67
Emphasis on New Developments	0.78	0.40
Opportunity to Specialize	0.83	0.76
Constant	-37.18	-37.34

TABLE 3-27

Classification of Freshmen Persistors Using Functions from Table 3-26

Actual Group	Predicted Group			
	LA	Business	Tech	Total
LA	96	17	22	135
Business	13	108	14	135
Tech	18	12	105	135

	Group Means on Discriminant Functions	
	I	II
LA	37.18	35.10
Business	35.27	37.34
Tech	33.04	32.30

with an accuracy of 80% and 78%, respectively. For this analysis, the value of the generalized Mahalanobis D-Square is 596; when interpreted as a value for Chi-Square with 48 degrees of freedom, the result is significant at $p < .001$.

What conclusions may be drawn from these analyses? First of all, the data clearly make it possible to classify students with reasonable accuracy into the school of their choice. Secondly, these classifications have been accomplished using only a subset of the available data. Presumably, one could improve upon the accuracy of the classification by use of more of the data. These analyses may be viewed as exploratory and designed to illustrate that classification with better than chance accuracy is possible. However, we should note one reason for some disappointment. Even though either of the classification schemes is statistically significant, it is not at all clear what the results mean psychologically. The authors have found it quite difficult to interpret the functions obtained or to make them psychologically meaningful.

CHAPTER FOUR

PERSISTORS, TRANSFERS, AND DROPOUTS

Of the more than 400 students who enter the Technological Institute with the freshmen classes of 1961 or 1962, approximately half graduate as engineers. Attrition takes place by three primary means. A substantial number transfer into the College of Liberal Arts and Science. A somewhat smaller number transfer into the School of Business. Finally, a sizeable group leave the campus entirely, leaving either voluntarily or because of academic difficulties.

In this chapter, we will review data from the freshmen questionnaires for the 44 students transferring to Liberal Arts prior to the beginning of the sophomore year; the 30 students transferring to Business during the same period; and the 203 students who have remained in Tech into their fourth year of studies. The data for this last group of students have already been discussed in chapter three but are repeated here. In a sense, they provide a basis for comparison among the two transfer groups and those who drop out. Finally, there is a more heterogeneous group of 127 students who have left the campus during the four-year period — the dropout group, which includes students who leave voluntarily or who are dismissed for academic reasons. For this group, we have relatively little information except for that obtained from the freshman questionnaire. However, we can make some comparisons based upon college board scores and first year academic performance.
On the basis of college board scores, those who eventually are dismissed have slightly lower mathematics aptitude scores than are obtained by the total Tech population (654.8 vs. 678.9), but those who transfer or who leave voluntarily are only slightly lower. Similarly, on verbal aptitude, average scores for those who transfer to Business are somewhat lower than the average

of the total population (561.9 vs. 601.6) but there is little difference between the total population and those who transfer to LA, who leave voluntarily, or who are dismissed. However, there are differences in academic performance for the first year. The cumulative grade point average for all such students for the first year is 2.34, to be compared to 2.09 for those who transfer to LA, 1.98 for those who transfer to Business, 2.06 for those who leave voluntarily, and 1.44 for those who are dismissed. The following conclusions seem appropriate. Those who persist in Tech have better academic records for the first year than do those students who transfer, leave voluntarily, or are dismissed. But the differences in aptitude are not large. Very likely some of the differences in performance must be attributed to factors other than aptitude.

In this chapter, the descriptive data from the freshman questionnaire will be reviewed. In the final chapter, we will attempt to interpret the available data and consider its implications for a theory of identity processes and occupational choice.

§1. Family background.

Data on student's self-perception of socio-economic class are included in Table 4-1. In general, there are few differences to be noted among the four groups. The students who drop out most nearly resemble those who persist in Tech. By way of comparison with Table 3-1, students from upper class families are more likely to enter directly Liberal Arts or Business than they are to transfer. The transfer group to LA contains a higher percentage of working class students than does the original group (16.4% vs. 9.0%). Similarly, the data on size of home town (Table 4-2) are not particularly revealing. There is one interesting observation that can be made from a comparison of Tables 3-2 and 4-2. Students from large cities are quite

TABLE 4-1

Percent Distribution of Student's Self-Perception of Socio-Economic Class

Social Class	Student's Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Upper	10.9	6.6	2.4	4.9
Middle	72.6	86.8	79.4	77.0
Working	16.4	6.6	18.2	18.1

TABLE 4-2

Percent Distribution of Size of Home Town

Size	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Less than 5000	12.7	13.4	14.3	10.9
5000 -15,000	23.6	16.7	17.8	16.9
15,000 - 50,000	25.4	30.0	30.2	30.4
50,000-200,000	18.2	13.3	11.1	19.9
Over 200,000	20.0	26.6	25.4	23.9

numerous among those who enter directly into LA or Business. Students who transfer are somewhat more likely to come from cities and towns of no more than 50,000 population. For example, among the transfer students to LA and Business 61.7% and 60.1% come from home towns no larger than 50,000, respectively. Similar percentages for LA and Business are 50.1 and 43.7, respectively.

The data on father's occupation and parent's education are of greater significance. From Table 4-3 on father's occupation, both at time of birth and at present, one notes that the percentage of transfers to LA from professional backgrounds is not particularly high (10.9% at present) and is much lower than the similar percentage for the LA group as a whole (31.2%). Similarly, the percentage of students whose father is at present a skilled or semi-skilled worker is fairly high among both transfer groups, nearly twice as high as the percentages for those entering LA or Business. Finally, consider the percentage for "other" for father's occupation at time of birth for both transfer groups and those who drop out. These percentages are quite high and higher than corresponding percentages in Table 3-3. This category is made up primarily of fathers in the armed services at time of birth. One might conjecture a possible explanation for these particular differences. Perhaps, these parents were just beginning their careers and were more likely to be eligible for the draft. Parents of students entering directly the three schools may have been further along in their careers and their specialized or professional skills may have made it more likely that they would be draft exempt.

Turning to Table 4-4 on educational backgrounds of parents helps to clarify the data on father's occupation. Among the students who transfer to LA, there are many fathers with bachelor's degrees (32.7%) but relatively

TABLE 4-3

Percent Distribution of Father's Occupation

Occupation	At Time of Birth				Present Occupation			
	Transfer to LA	Transfer to Business	Dropout	Tech	Transfer to LA	Transfer to Business	Dropout	Tech
Agriculture	7.3	0.0	4.0	6.5	9.1	0.0	3.2	5.5
Skilled & Semi-skilled	21.8	20.0	23.2	24.1	18.2	23.3	24.0	25.4
Clerical & Sales	9.1	10.0	16.0	10.5	18.2	6.7	12.8	15.4
Business	3.6	3.3	4.0	6.5	7.3	10.0	12.0	10.9
Professional	9.1	0.0	3.2	11.1	10.9	10.0	5.6	9.9
Exec. & Admin.	5.4	13.4	4.0	5.5	14.6	26.6	16.8	17.4
Engineering and Science	10.9	13.4	13.6	13.5	12.7	13.3	16.8	10.4
Deceased	0.0	0.0	0.0	0.0	5.5	10.0	4.0	3.9
Other	32.7	40.0	32.2	21.6	3.6	3.3	4.8	1.1

TABLE 4-4

Percent Distribution of Educational Backgrounds of Parents

Classification	Father's Education							Mother's Education						
	8th Grade	9th-11th	High School	Some College	Bach. Degree	Master's or Prof. Degree	Doctorate	8th Grade	9th-11th	High School	Some College	Bach. Degree	Master's or Prof. Degree	Doctorate
Transfer to LA	7.3	7.3	16.4	20.0	32.7	10.9	5.4	5.5	10.9	30.9	32.7	14.6	5.5	0.0
Transfer to Business	6.7	0.0	36.8	13.3	36.8	6.7	0.0	3.3	6.7	43.4	16.7	23.4	3.3	3.3
Dropout	3.2	8.7	27.0	30.2	21.4	8.7	0.8	3.2	5.6	51.6	20.6	17.5	1.6	0.0
Tech	7.5	8.4	28.8	21.9	20.4	9.9	3.0	6.5	8.0	33.5	29.5	17.5	4.5	0.5

few with advanced degrees. Specifically among the transfers to LA, 16.3% of the fathers have advanced degrees while 33% hold advanced degrees among those who enter Liberal Arts. Similarly, the original data for Business students show a sizeable number with bachelor's degrees (30.3%) and some with advanced degrees (15.4%). Fathers of the students who transfer into Business fall largely into two categories: a high school (36.8%) or a college degree (36.8%). The differences for mother's education are less extreme. For both transfer groups, the mothers have received somewhat less education than have the mothers of students in the original LA and Business groups. Looking at the data on dropouts, fathers of those who drop out resemble the parents of those who persist in Tech, but the educational attainments of the mothers are somewhat less than for the persistor group in Tech.

Finally, in Table 4-4 are data on family's orientation to going to college. There is only one difference that is at all noticeable. Of those who transfer to Business, 96.6% state that a college education was naturally assumed for all; the comparable figure from Table 3-5 is 86.0%.

§2. Long-Range Values and Aspirations.

In the next set of tables are data about the long-range views of these students who transfer or drop out. First of all, in Table 4-6 are data on expected standard of living relative to that of their family. The dropout students are like the persistors in Tech with 64.3% expecting a higher standard of living. By comparison to Tech, there are more transfer students who expect the same standard of living. But, by comparison to LA or Business (Table 3-6) transfer students are a little more likely to expect a higher standard of living.

In Table 4-7 are data on expected income ten years after graduation.

TABLE 4-5

Percent Distribution on Family's Orientation to Going to College

Orientation	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Naturally assumed for all	83.5	96.6	76.1	76.5
Encouraged but not assumed	16.5	3.4	23.9	23.5
Not assumed for any	0.0	0.0	0.0	0.0

TABLE 4-6

Percent Distribution of Expected Standard of Living Relative to that of Family

Expected Standard	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Higher	54.5	50.0	64.3	61.5
Same	43.6	46.7	34.2	38.0
Lower	1.8	3.3	1.6	0.5

TABLE 4-7

Percent Distribution of Expected Income Ten Years after Graduation

Expected Income	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Less than $7499	0.0	13.8	3.3	3.5
$ 7,500 - 9,999	10.9	10.4	11.4	12.1
$10,000 -12,499	27.3	30.0	27.0	33.3
$12,500 -14,999	20.0	17.2	18.8	15.7
$15,000 -19,999	25.4	13.8	19.7	23.2
Over $20,000	16.4	13.8	18.8	12.1

Some interesting comparisons can be made using median expected incomes for the various groups. Students who drop out expect a higher income than do those who persist in Tech. Expected median incomes are $13,531 and $12,661 respectively. However, students who transfer expect lower incomes than do the comparable groups entering LA or Business. For LA students vs. those who transfer to LA, the expected medians are $16,028 vs. $13,978; for Business students vs. those who transfer to Business, the expected medians are $14,190 vs. $12,082, respectively; and the lowest median is that obtained for those who transfer to Business. It is important to note that these data were obtained at the very beginning of the freshman year, before students had transferred or had begun to experience academic difficulties.

One might summarize the data introduced so far with the following interpretation. Those students who transfer come from somewhat more modest backgrounds, measured in terms of parents' education or parents' occupational and economic attainments, than do students who enter initially into Liberal Arts or Business. As a consequence, these transfer students have greater relative aspirations and greater expectations for upward mobility. Because of their more modest backgrounds, their absolute expectations for financial success are lower. On the other hand, those who drop out and those who persist in Tech come from somewhat similar backgrounds. If anything, those who drop out begin their careers with slightly higher aspirations for financial success than do the Tech students, when measured in absolute terms. Perhaps because of their more modest backgrounds, the transfer students were unable to decide initially to enter either Liberal Arts or Business. Events taking place during their first year of college make it either possible or necessary to review and to revise their original choice among the three schools.

Further data on student aspiration are contained in Table 4-8. When

TABLE 4-8

Percent Distribution of Student's Aspirations

Aspiration	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Independent	41.9	17.2	26.0	25.9
Successful	27.4	55.2	45.5	43.7
Well-Liked	31.0	27.6	28.5	30.4

students were asked to choose among being independent, successful, or well-liked, the students who transfer to LA are most likely to choose the category of independent (41.9%). This percentage is considerably higher than the comparable percentage for LA students (31.4%) or for Tech students (25.5%). On the other hand, all remaining groups of students, including transfers to Business and dropouts are most likely to choose the category of successful.

From the data on the most-valued activities in life (Table 4-9), one notes that the majority of transfer students expect to obtain the most satisfaction from their families; a substantially smaller number rate their careers as the most important. Both groups of transfer students contain a significant number who place the highest importance on recreation: 9.1% for transfers to LA and 16.7% for transfers to Business. By comparison with Table 3-9, it is apparent that the LA students as a whole place greater importance on career satisfactions. Some complementary findings can be derived from Table 4-10 on factors influencing the decision to attend college. The transfers to LA are not unlike the Tech persistors in their very strong ratings for obtaining professional skills and their moderate ratings for intrinsic interest in learning in the field and for avoiding a low-level job. They differ somewhat from the LA students (Table 3-10) by placing less emphasis on general intellectual growth and being more concerned with avoiding a low-level job.

The students who transfer to Business differ from the Tech students by placing less emphasis on intrinsic learning in the field and greater emphasis on avoiding a low-level job. By comparison to the Business students, they are more concerned with professional skills and avoiding a low-level job and less concerned with general intellectual growth. Finally, those who drop out seem to differ in no important respect from the Tech students on responses to this set of questions.

TABLE 4-9

Percent Distribution for Student Views of the Most Valued Activities in Life

Classification	Activity											
	Career				Family				Recreation			
	1st	2nd	3rd	None	1st	2nd	3rd	None	1st	2nd	3rd	None
Transfer to LA	27.3	54.6	12.7	5.4	58.1	23.6	5.5	12.8	9.1	16.4	30.9	43.6
Transfer to Business	26.6	56.6	13.4	3.4	56.6	30.0	6.7	6.7	16.7	0.0	36.7	46.6
Dropout	41.1	45.2	10.3	3.4	48.5	36.6	7.1	8.8	7.1	7.9	45.2	39.7
Tech	33.5	53.4	11.3	1.8	55.3	26.1	8.9	9.8	4.4	9.3	45.0	41.3

	Activity											
	Religion				Community Affairs				Nat. & International Affairs			
	1st	2nd	3rd	None	1st	2nd	3rd	None	1st	2nd	3rd	None
Transfer to LA	1.8	3.6	14.6	80.0	0.0	0.0	16.4	83.6	1.8	1.8	20.0	76.4
Transfer to Business	0.0	6.7	30.0	63.3	0.0	0.0	10.0	90.0	0.0	3.3	3.3	93.4
Dropout	2.4	7.1	16.7	73.8	0.0	0.8	11.1	88.1	0.0	1.6	8.7	89.7
Tech	5.4	3.4	16.2	75.0	0.0	0.5	10.3	89.2	1.5	4.9	8.4	85.1

TABLE 4-10

Percent Distribution on Factors Influencing the Decision to Attend College

Classification	Factor											
	Gain Professional Skills			Intrinsic Interest in Learning in My Field			General Intellectual Growth			Avoid Low-Level Job		
	Influence			Influence			Influence			Influence		
	Great	Some	None	Great	Some	None	Great	Some	None	Great	Some	None
Transfer to LA	88.9	11.1	0.0	60.5	39.5	0.0	28.3	39.6	32.1	51.0	34.0	15.0
Transfer to Business	96.5	3.5	0.0	42.8	50.0	7.2	10.7	46.5	42.8	75.0	17.9	7.1
Dropout	91.1	8.9	0.0	64.1	31.7	4.2	15.4	48.0	36.6	61.9	26.0	12.2
Tech	91.0	8.5	0.5	59.4	37.4	3.2	18.5	49.5	32.0	58.0	30.9	11.1

§3. Career Plans and Expectations.

In the next set of tables, there will be summarized the data on career plans of the transfer students and those who drop out. Since these data were obtained as the students were entering Tech, it is not surprising that their specific career choices reflect their initial interest in engineering. Data on their changes in plans will be discussed in chapter six.

In their career choices, the students who transfer to LA resemble the Tech students very closely (Tables 4-11 and 3-11). Ideally upon graduation, the bulk of these students expect positions in some branch of engineering (42%); a substantial number would like positions in applied research (18.2%), and 12.7% prefer an initial position in management. Unlike the Tech students, none among these students wants an initial position in basic research. Their resemblance to the Tech students holds for their realistic expectations upon graduation when they expect primarily to be involved with engineering and at the peak of their careers when they expect to have made a transition into management. As one might expect, they in no sense resemble those in Liberal Arts who indicate a substantial number of choices for medicine, dentistry, and law.

Those who transfer to Business show initially a greater interest in management than do the Tech students and less emphasis on applied research; this strong emphasis on management is continued in their choices for position at the peak of their careers. They differ from those who initially choose business in only one respect, the fact that there are few of the transfer students planning an eventual career in law. Those who drop out choose careers in very much the same fashion as do the students in Tech and also anticipate that they will eventually enter a career in management.

Although the data on career plans are not particularly revealing, much

TABLE 4-11

Percent Distribution for Career Aspirations

Position	Ideally upon graduation	Realistically upon graduation	At peak of career
	Transfer to LA		
Management	12.7	7.4	54.5
New product development	0.0	3.6	0.0
Applied research	18.2	9.1	9.1
Engineer (unspecified)	16.4	25.4	5.5
Chemical Engineer	9.1	7.3	1.8
Civil Engineer	5.5	3.6	0.0
Electrical Engineer	5.5	7.3	1.8
Mechanical Engineer	5.5	5.5	0.0
Physician or dentist	3.6	3.6	3.6
Lawyer	3.6	1.8	5.5
Armed Services	0.0	5.5	0.0
Undecided	10.9	12.8	10.9
Other	9.0	8.1	7.3
	Transfer to Business		
Management	20.0	3.3	66.7
Sales or Sales Engineering	0.0	6.7	0.0
Teaching	6.7	6.7	0.0
Applied Research	6.7	3.3	0.0
Engineer (unspecified)	13.3	23.4	0.0
Electrical Engineer	10.0	10.0	3.3
Mechanical Engineer	6.7	3.3	0.0
Industrial Engineer	3.3	10.0	3.3
Armed Services	6.7	6.7	6.0
Undecided	10.0	16.7	6.7
Other	6.6	9.9	20.0
	Dropout		
Management	12.7	4.8	59.5
Teaching	1.6	1.6	2.4
Equipment design	6.4	2.4	0.8
New Product Development	1.6	1.6	0.0
Basic research	4.0	4.0	2.4
Applied research	7.1	9.6	6.4
Engineer (unspecified)	23.8	35.0	4.8
Chemical Engineer	8.0	7.2	0.8
Electrical Engineer	4.8	5.6	1.6
Industrial Engineer	1.6	2.4	1.6
Physician or dentist	2.4	2.4	3.2
Armed Services	5.6	6.4	2.4
Undecided	11.1	9.6	8.0
Other	9.2	7.4	6.1

more interesting results are obtained from the responses to questions on the ideal job and student's realistic expectations (Table 4-12). As a first attempt to interpret these data, a comparison of views between the two transfer groups and the Tech persistors has been summarized in Table 4-13. In this table, the column headed "Δ I" contains the ideal percentage for the transfer group minus the comparable percentage for the Tech group. A positive difference indicates that relatively more of the transfer students desire a particular characteristic than do the Tech students. Similarly, ΔR equals the transfer group's realistic percentage minus the comparable percentage for Tech. A minus difference implies that the transfer group expects less with respect to that particular quality. Finally in the column head $|\Delta_T| - |\Delta_{Tech}|$ is a measure of the discrepancy for the transfer group between ideal and realistic percentages relative to the same difference in percentages for the Tech group. Actually, we have compared the absolute magnitude of the differences for each group in order to determine which is larger. In a sense, this final measure is a rough index of which group, transfers or persistors, expects the greater discrepancy between their ideal and realistic expectations for a particular characteristic, with a positive difference implying a greater expectation of difference for the transfer group.

There is one additional feature to Table 4-13. The list of ten characteristics has been re-ordered into four classifications. These can be described as 1) self-realization, 2) rewards to be obtained from one's occupation, 3) relative desire for freedom, and 4) interpersonal characteristics of a position.

Those who transfer to Liberal Arts differ considerably from the Tech persistors. In general, they place greater demands on an ideal job. Although the differences are not uniform among all four of the classifications, they

TABLE 4-12

Percent Distribution for Student Views of the Ideal Job and of Their Realistic Expectations

Job Characteristic	Classification											
	Transfer to LA			Transfer to Business			Dropout			Tech		
	I	R	I - R	I	R	I - R	I	R	I - R	I	R	I - R
Chance to use my abilities	91.0	54.5	36.5	96.5	56.5	40.0	82.5	51.5	31.0	90.0	62.6	27.4
Chance to earn a good deal of money	41.8	29.2	12.6	60.0	23.4	36.6	53.1	30.1	23.0	38.9	27.1	11.8
Permit me to be original and creative	74.5	30.9	43.6	46.6	10.0	36.6	61.0	30.1	30.9	62.5	36.0	26.5
Give me status and prestige	21.8	9.1	13.4	13.4	20.0	-6.6	16.7	10.3	6.4	13.3	11.8	1.5
Chance to work with people	40.0	25.5	27.2	40.0	30.0	10.0	23.8	20.6	3.2	17.2	14.3	2.9
Provide a stable, secure future	65.5	43.6	21.9	90.0	56.6	33.4	73.6	62.6	11.0	66.5	52.8	13.7
Leave me free of supervision	60.0	9.1	72.8	40.0	3.3	36.7	40.4	6.4	34.0	46.9	10.8	36.1
Chance to exercise leadership	50.9	10.9	40.0	60.0	20.0	40.0	46.0	23.8	22.2	36.9	18.2	18.7
Chance for adventure	45.5	10.9	34.6	30.0	10.0	20.0	33.3	15.9	17.4	40.4	14.3	26.1
Opportunity to help others	54.5	29.1	25.4	50.0	26.7	23.3	45.2	31.8	13.4	38.0	19.2	18.8

TABLE 4-13

Comparison of Transfers to LA vs. Tech; Transfers to Business vs. Tech on Ideal Job and Realistic Expectations

Job Characteristic	Classification					
	Trans. to LA vs. Tech			Trans. to Business vs. Tech		
	ΔI	ΔR	$\lvert\Delta_T\rvert - \lvert\Delta_{Tech}\rvert$	ΔI	ΔR	$\lvert\Delta_T\rvert - \lvert\Delta_{Tech}\rvert$
Chance to use my abilities	+ 1.0	- 8.1	+ 9.1	+ 6.5	- 4.1	+10.6
Permit me to be original & creative	+12.0	- 5.1	+17.1	-15.9	-26.0	+10.1
Chance to earn a good deal of money	+ 2.9	+ 2.1	+ 0.8	+21.1	- 3.7	+24.8
Give me status and prestige	+ 8.5	- 2.7	+11.2	+ 0.1	+ 8.2	- 8.1
Provide a stable, secure future	- 1.0	- 9.2	+ 8.2	+23.5	+ 3.8	+19.7
Leave me free of supervision	+13.1	- 1.7	+14.8	- 6.9	- 7.5	+ 0.6
Chance to exercise leadership	+14.0	- 7.3	+21.3	+23.1	+ 1.8	+21.3
Chance for adventure	+ 5.1	- 3.4	+ 8.5	-10.4	- 4.3	- 6.3
Chance to work with people	+22.8	+11.2	+11.6	+22.8	+15.7	+ 7.1
Opportunity to help others	+16.5	+ 9.9	+ 6.6	+12.0	+ 7.5	+ 4.5

apparently differ least in their desire for rewards from their careers. They differ most in wanting to work with people and to help others. They differ rather substantially in their desires for being free of supervision and an opportunity for leadership. They also are more concerned about an opportunity to be original and creative.

In addition to having higher aspirations for an ideal job, there is a sense in which these transfer students to LA expect less of an actual job, which suggests that they are significantly more pessimistic about their intended careers. For example, in absolute terms, many of their realistic percentages are lower than the comparable percentages for Tech students, although they do expect more of a chance to work with people and more opportunity to help others. Their relative degree of pessimism is revealed most conspicuously by the $|\Delta_T| - |\Delta_{Tech}|$ scores. For every job characteristic, they anticipate a greater discrepancy between ideal and realistic than do the Tech students. Interestingly enough, the relative discrepancies are small for the three characteristics that involve rewards. The discrepancies are large for the ratings on self-realization, relative freedom, and interpersonal characteristics of a position. They apparently expect work to be limiting, confining, and overly impersonal, but materially rewarding.

In order to carry this analysis one step further, the ratings of the transfer group to LA have been compared to those for all LA students in Table 4-14. This table follows the format of Table 4-13 and also contains a comparison of transfers to Business with Business and dropouts with Tech. In absolute terms, those who transfer to LA would like a greater opportunity to be original and creative than would the LA students. Their ideal demands are higher on being free of supervision or having opportunities for leadership or adventure. They differ little with respect to their views about

TABLE 4-14

Comparison of Transfers to LA vs. LA; Transfers to Business vs. Business and Dropouts vs. Tech on Ideal Job and Realistic Expectations

Job Characteristic	Classification								
	Transfer to LA vs. LA			Trans. to Business vs. Business			Dropout vs. Tech		
	ΔI	ΔR	$\lvert\Delta_T\rvert - \lvert\Delta_{LA}\rvert$	ΔI	ΔR	$\lvert\Delta_T\rvert - \lvert\Delta_{Bus}\rvert$	ΔI	ΔR	$\lvert\Delta_T\rvert$ $\lvert\Delta_{Tech}\rvert$
Chance to use my abilities	+ 2.9	-14.1	+17.0	+13.5	+10.9	+ 2.6	- 7.5	-11.1	+ 3.6
Permit me to be original and creative	+22.1	+ 6.4	+15.7	- 1.4	-10.0	+ 8.6	- 1.5	- 5.9	+ 4.4
Chance to earn a good deal of money	+ 2.4	-11.7	+11.1	- 6.4	-18.2	+11.8	+14.2	+ 3.0	+11.2
Give me status and prestige	- 3.4	-26.6	+ 2.9	-20.9	- 0.5	- 7.2	+ 3.4	- 1.5	+ 4.9
Provide a stable, secure future	+ 2.2	-14.4	+16.6	+14.0	+ 5.7	+ 8.3	+ 7.1	+ 9.8	- 2.7
Leave me free of supervision	+10.3	-20.6	+30.9	-12.0	-17.9	+ 5.9	- 6.5	- 4.4	- 2.1
Chance to exercise leadership	+ 9.8	-13.5	+23.3	- 4.6	-18.3	+13.7	+ 9.1	+ 5.6	+ 3.5
Chance for adventure	+16.1	- 3.5	+19.6	+ 0.3	- 1.4	+ 1.7	- 7.1	+ 1.6	- 8.7
Chance to work with people	-18.0	-35.5	+11.5	-17.7	-18.0	+ 0.3	+ 6.6	+ 6.3	+ 0.3
Opportunity to help others	-12.3	-34.5	+22.2	+ 4.4	+ 4.4	+ 0.0	+ 7.2	+12.6	- 5.4

ideal rewards and they are willing to accept a more impersonal ideal position than are the LA students. But realistically they expect much less in absolute terms. The net effect is that they are much more pessimistic about reality meeting their ideals than are the LA students.

Similar analyses have been carried out for those who transfer to Business. In comparison to the Tech students, the transfers want greater rewards, particularly in terms of money and security. They want a position that is less impersonal and that offers greater opportunity for leadership. They show less concern for an opportunity to be original and creative. On the whole, they are more pessimistic than are the Tech students but not to the degree expressed by the transfers to LA. Their largest discrepancies from Tech fall under the heading of rewards and leadership. It is interesting to note that prestige seems not to be a major concern for these students, whether measured in absolute or relative terms. As to a comparison of these students with those in Business no very clear picture emerges. The ideal ratings of the transfer students are often lower, with the exception of the percentages on a chance to use my abilities and obtaining a stable, secure future. Moreover, their realistic expectations are often lower and, as a consequence, their relative expectations of discrepancies between ideal and realistic are often greater, with the need for status and prestige being the one exception.

Finally, there is the comparison of those who drop out with the Tech students. Those who drop out make choices that do not differ substantially from those made by Tech students. Ideally, they want somewhat greater rewards and a less impersonal position, but, relatively speaking, they expect about the same discrepancy between ideal and realistic as do the Tech students.

In Table 4-15 are data on these students' views on qualities essential for success in one's chosen field which are comparable to the data in Table 3-14.

TABLE 4-15

Percentage Distribution on Qualities Essential
for Success in One's Chosen Field

Quality	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
1. Ability to express yourself	87.5	83.5	80.4	83.5
2. Special talent or aptitude	54.6	50.0	49.4	60.6
3. Luck	10.9	3.3	6.4	7.9
4. Leadership Ability	58.2	56.7	54.0	42.0
5. Ability to get people to like you	51.0	50.0	36.5	36.5
6. Understanding people	63.6	63.4	59.5	52.9
7. Good grounding in basic theory	80.0	73.5	82.0	87.0
8. Practical knowledge of facts in field	91.0	90.0	89.6	85.5
9. Ability to persuade	51.0	40.0	39.7	43.5
10. Devotion to work	72.8	73.5	70.6	71.1
11. High degree of intelligence	38.2	40.0	46.3	40.0
12. Knowledge of special techniques	52.8	43.4	46.3	46.9
13. Hard work	82.0	86.9	86.0	88.0
14. Knowing influential people	5.5	6.7	11.9	7.9
15. Social poise	16.4	20.0	15.9	13.8
16. Having capital or access to it	16.4	10.0	10.3	9.9
17. Administrative ability	63.6	50.0	53.2	54.9

In interpreting these data, it will help to make use of the four groupings of these qualities that are summarized in Table 3-15. Those who transfer to Liberal Arts are much like the Tech students in their high emphasis on both personal abilities (ratings 1, 2, 11) as well as acquired abilities and required effort (7, 8, 10, 12, 13) as essential for success. However, the LA transfers rate those qualities that involve interpersonal skill (4, 5, 6, 9, 15, 17) as rather more important than do the Tech students. With respect to favorable events in the environment (3, 14, 16) there is little difference among these two groups, although the transfer students rate having capital or access to it somewhat more highly.

When compared to the LA students on personal and acquired abilities, the transfers to LA place greater emphasis on their ability to express, and on a good grounding in theory, but less emphasis on hard work. Perhaps, the fact that more of the transfers expect managerial or industrial careers, while LA students plan medical or law careers, may lie behind these particular differences. The comparison on the basis of interpersonal skills yields a more complex pattern of differences. The transfers to LA rate more highly those skills involving leadership (14) or administrative ability (17), but less highly those qualities that involve getting people to like you (5), understanding (6), and having social poise (15). Even though these data were labelled as "qualities essential to success in one's chosen field," let us assume that this question is to some extent projective and that these are also qualities that a student thinks he may have. Then we may infer that the transfer students are most confident about dealing with others in the setting of an organization and in ways that are sanctioned by an organizational role. They seem to be less secure about those interactions that arise informally between equals and that may require insight and understanding. For those qualities concerning favorable events in the environment, the views held by the LA transfers resemble those of the LA students. Each group places little emphasis on these qualities, although fewer transfers rate knowing influential people as essential to success.

The views of those who transfer to Business can be compared, first to those in Tech, and then to those in Business. Like the Tech students, they place considerable emphasis on personal abilities, acquired abilities, and effort, with slightly less emphasis on a special talent or aptitude or on a good grounding in basic theory. The transfer students often place more emphasis on interpersonal skills as essential to success, although there is no difference in the proportion who rate the ability to persuade or administrative ability as essential to success. Also, they are like the Tech students in their tendency to place little emphasis on favorable events in the environment.

When compared to the Business students, they are more likely to rate high intelligence as essential (40.0% vs. 21.7%) and to emphasize a good grounding in theory (73.5% vs. 44.6%) and a knowledge of special techniques (43.4% vs. 26.9%). Their assessment of the importance of interpersonal skills is uniformly lower than the comparable percentages for the Business students and they are much less likely to rate favorable events in the environment as essential to success. One might describe the transfers to Business in the following way. They are like the Tech students in their emphasis on technical skills and intellectual ability. Perhaps because of their slightly stronger orientation toward management, they do place greater emphasis on interpersonal skills. They are more technically oriented than are the Business students and see themselves as less dependent upon interpersonal or administrative skills in order to be successful. Finally, from their de-emphasis on favorable events in the environment, one may infer that they are less enterprising and more inclined to view success as following from an orderly sequence of promotions from one position to another.

Turning to those who drop out, their pattern of choices resembles in almost every respect those made by the Tech students. The only exceptions are that they place somewhat less emphasis on special talent or aptitude (50.0% vs. 60.6%) and more emphasis on leadership ability (56.7% vs. 42.0%).

Finally, we can conclude this section on career expectations by an examination of Table 4-16 in which are summarized student feelings about their chosen careers. The transfers to LA appear to be less committed to their initial choice of a career, when compared either to those in Tech or LA. Only 9.1% claim that this is the only one that is really satisfying, the category that is selected by 30.5% of those in LA and 23.0% of those in Tech. Indeed 14.6% claim that it is not the most satisfying. The transfers to Business appear to be a little less committed than those in Tech although their choices resemble more closely those made by students in Business. Once again, those who drop out can not be distinguished from those who persist in Tech on the basis of responses to this particular question.

§4. Curriculum evaluations.

In Table 4-17 are summarized data on student views of their ideal curriculum and their realistic expectations. These data are comparable to those contained in Table 3-17. As an aid to interpretation, the differences on each scale of ideal rating minus realistic expectation have been computed and these data are summarized in Table 4-18 for the two transfer groups, those who drop out, as well as those who enter each of the three schools.

In discussing these data on curriculum evaluation, it will be useful to

TABLE 4-16

Percent Distribution on Feelings about Their Chosen Careers

Feelings	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Only one really satisfying	9.1	13.3	19.7	23.0
One of several	73.6	66.7	67.2	66.0
Not the most satisfying	14.6	6.7	7.2	4.0
Chosen without considering whether others might be more satisfying	1.7	13.3	6.4	6.5

TABLE 4-17

Student Views of Their Chosen Curriculum: Ideally and Realistically

Curriculum Characteristic	Classification							
	Transfer to LA		Transfer to Business		Dropout		Tech	
	I	R	I	R	I	R	I	R
1. Theory vs. Practice	4.36	4.37	4.57	3.56	4.66	3.60	4.29	3.55
2. Broad vs. Direct Relevance	3.25	4.45	3.25	2.78	3.48	3.19	3.20	3.19
3. Freedom of Choice Yes → No	1.97	4.94	2.67	5.50	2.98	5.09	2.89	4.74
4. Emphasis on citizenship No → Yes	5.42	2.67	5.00	2.20	3.98	2.95	4.47	2.98
5. Thinking vs. Facts and Techniques	2.89	3.82	2.67	3.17	3.13	3.53	2.95	3.35
6. Difficult vs. Easy	2.53	1.53	3.11	1.38	2.80	1.74	2.77	1.64
7. Emphasis on ability to express Yes → No	1.50	3.50	1.80	3.80	1.81	3.07	1.41	2.93
8. Emphasis on integration Yes → No	2.38	3.00	2.22	2.67	2.27	2.94	2.35	3.21
9. Emphasis on understanding people Yes → No	2.05	5.00	1.91	4.14	2.60	3.90	2.78	4.21
10. Emphasis on management Yes → No	2.05	3.75	1.50	3.29	2.10	3.52	2.66	3.97
11. Technical vs. humanities	3.79	2.31	3.50	2.36	3.28	3.05	3.17	2.70
12. Emphasis on new developments Yes → No	2.36	3.38	2.45	3.21	2.39	3.02	2.41	3.34
13. Opportunity to specialize Yes → No	3.04	2.50	3.88	2.28	3.22	2.95	3.20	3.08

raise a series of specific questions and to review the data as they relate to each of these questions. First of all, do those who transfer or drop out have an ideal image of a curriculum that differs from that image held by students who persist in Tech? And if so, in what respects are there differences? As in Chapter Three, we will discuss the curriculum characteristics as organized under the three general headings of characteristics of the subject matter (1, 2, 5, 12, 13); breadth of the curriculum in areas other than those that are explicitly professional (4, 7, 9, 10, 11); and the administration and organization of the curriculum (3, 6, 8). In general, those who transfer or drop out have somewhat different images of an ideal curriculum. The transfers to LA differ considerably from Tech in the emphasis on a broad curriculum, which includes subject matter of no immediate professional relevance. This includes a greater emphasis on preparation for citizenship, on learning to understand people, on management, and on humanistic subjects, although the two groups place almost equal and high emphasis on the ability to express oneself. In addition, the LA transfers would like a curriculum with greater freedom of choice which might even be slightly more difficult. The two groups differ in minor ways in their view of the major characteristics of the subject matter. Both groups want a balance between theory and practice, a moderately broad program, with emphasis on learning how to think, an emphasis on new developments, and a moderate opportunity to specialize. Those who transfer to Business also want a program of greater breadth particularly in non-professional areas. They would like a greater emphasis on preparation for citizenship, on understanding people, on the humanities, and on management training, but less on learning how to express oneself. They do not differ on the degree of freedom of choice desired but would like a slightly easier program. Finally, they wish that the program would be more practical and with less emphasis on specialization. This latter desire may follow from their strong emphasis on training for management. Specialization within Tech means specialization within a field of engineering, which may be undesirable for a student planning a career in management.

Finally, those who drop out also differ from those who persist in Tech by wanting a more practical program that is less broad and is more factual. To some extent, they want a program that is limited to professional preparation with less emphasis on citizenship or on learning to express. However, they would like more emphasis on management training and slightly more on learning to understand people. While the transfer students differ by wanting a broader, less technical curriculum, those who drop out would apparently be satisfied with a more practical program limited primarily to pre-professional preparation.

Next we can compare the transfers to LA with those in LA and the transfers to Business with those in Business on the basis of their images of an ideal curriculum. In general, those who transfer to LA want a program with less breadth and with greater emphasis on learning to think and on theory. As to breadth, they want more emphasis on management and on preparation for citizenship but less on the ability to express, on understanding people, and on the humanities. If anything, the transfer students to LA are even more concerned with having some freedom of choice about their curriculum. Roughly speaking, the transfers to LA have views about an ideal curriculum that lie between those views of the LA students and of the Tech students.

Similarly, the views expressed by those who transfer to Business are in between those held by the Business and the Tech students. In comparison to the Business students, they want more emphasis on theory, on learning to think, and less on specialization. Quite uniformly, they want less breadth to the curriculum than do the Business students. They are less concerned with freedom of choice but they would like an easier curriculum. Note, however, that their evaluations are presumably based on the Tech curriculum, which is a rather difficult one.

Looking at the data on realistic expectations, do all students who begin in Tech have the same evaluation of what the curriculum will be like? To some extent, one might assume that their realistic expectations would be similar. After all, they are entering the same program and have had similar opportunities to obtain information about the Tech curricula. On the other hand, these realistic ratings are based not only on facts about the curriculum but on interpretations of these facts. For example, let us assume that most students have read the Tech catalogue which states how many electives are available in a given curriculum and what sorts of choices may be made from among Liberal Arts courses. But, a given number of electives may seem ample to one student and hopelessly inadequate to another. At any rate, from the data, it seems clear that students do impose interpretations upon facts about the curricula in Tech, for these different groups of students have different realistic expectations about what the Tech program will be like.

Those who transfer to LA, when compared to the Tech students, see the curriculum as relatively more practical, with greater direct relevance to the work one will be doing, as more factual and more specialized. They apparently evaluate the curriculum as quite vocationally oriented and with less emphasis on abstraction. Similarly, the transfers to LA view the Tech curriculum as much more limited to engineering than do the Tech students and the differences between the two groups on these characteristics are quite striking. Only for those ratings that concern the administration and organization of the program is there relative agreement between the two groups.

The transfers to Business also evaluate the Tech program differently than do the Tech students, but the differences are less extreme than for those who transfer to LA. Those who transfer to Business see the program as having less direct relevance to their work and as more specialized. To some extent, they view the curriculum as having less breadth than do the Tech students, particularly in the areas of management and the humanities. They see the program as offering less freedom of choice than do the Tech students, as being relatively more difficult, but with more emphasis on integration of courses into a unified whole.

Finally, those who drop out can be compared to those persisting in Tech. As to the nature of the subject matter, the two groups agree substantially on what they expect realistically. On their evaluation of the breadth to be found in the program, the differences are not extreme and, if anything, those who drop out believe that the program has greater breadth than do those who persist, particularly in the areas of understanding people, management, and the humanities. It will help to recall that those who drop out wanted a narrower and more technical curriculum than did those who persist, as revealed by their ideal ratings. Perhaps, from this narrower perspective, the program does appear to be reasonably broad, when evaluated by those who drop out.

The next question to be discussed makes use of the differences between ideal and realistic ratings which are summarized in Table 4-18. Let us assume that these differences give a rough index of the extent to which one expects one's ideal to differ from what one expects realistically. The magnitude of the difference could also be taken as an index of the degree to which one expects to be disappointed by his choice of a program of study. Of the six groups of students, which group expects the greatest disappointment? Let us first compute the sum of the absolute values of the I - R differences for each

TABLE 4-18

Comparison of Transfer and Dropout Students with Those in Liberal Arts, Business, and Tech on Curriculum Evaluations

Curriculum Characteristic	Classification					
	LA	Transfer to LA	Business	Transfer to Business	Tech	Dropout
	I - R	I - R	I - R	I - R	I - R	I - R
1. Theory vs. Practice	+0.60	-0.01	+0.77	+1.01	+0.74	+1.06
2. Broad vs. Direct Relevance	+0.24	-1.20	+0.07	+0.47	+0.01	+0.29
3. Freedom of choice Yes -> No	-1.58	-2.97	-1.07	-2.83	-1.85	-2.11
4. Emphasis on citizenship No -> Yes	+1.06	+2.75	+0.66	+2.80	+1.49	+1.03
5. Thinking vs. Facts and Techniques	-0.52	-0.93	-0.43	-0.50	-0.40	-0.40
6. Difficult vs. Easy	+0.50	+1.00	+0.34	+1.73	+1.13	+1.06
7. Emphasis on ability to express Yes -> No	-1.40	-2.00	-1.04	-2.00	-1.52	-1.26
8. Emphasis on integration Yes -> No	-0.65	-0.62	-0.81	-0.45	-0.86	-0.67
9. Emphasis on understanding people Yes -> No	-1.07	-2.95	-1.09	-2.23	-1.43	-1.30
10. Emphasis on management Yes -> No	-1.10	-1.70	-0.80	-1.79	-1.31	-1.42
11. Technical vs. Humanities	+0.33	+1.48	+0.68	+1.14	+0.47	+0.23
12. Emphasis on new developments Yes -> No	-0.83	-1.02	-0.71	-0.76	-0.93	-0.63
13. Opportunity to specialize Yes -> No	-0.06	+0.54	+0.41	+1.60	+0.12	+0.27

of the six columns in Table 4-18. Admittedly, one might question the legitimacy of this computation, but at least it permits us to derive a rough index of the total discrepancy between ideal and realistic expectations. From these results, it would appear that the two transfer groups are the most dissatisfied with their chosen programs of study. Their total discrepancy scores are 19.37 for the LA transfers and 19.31 for the Business transfers. By way of contrast, the discrepancy scores for the three college groupings are much lower, with the Business students scoring the lowest (8.88), Liberal Arts next (9.94), and Tech students somewhat higher (12.26). Surprisingly enough, the discrepancy score for the dropout group is not particularly high and is slightly lower than that obtained by those who persist in Tech (11.73 vs. 12.26).

Using these data, we wish to examine one final question: would those who transfer have been better off if they had begun in the school to which they eventually transfer? In general, we have no way of answering this question. However, let us assume that the realistic ratings made by Liberal Arts students are a reasonable index of what the program is actually like and that those who transfer to LA would agree substantially with these realistic ratings. We will make a similar assumption about the realistic ratings made by the Business students. Next, we have computed a total discrepancy score for both groups of transfer students using their own ideal ratings and the realistic ratings of the students in the school to which they eventually transfer. The resulting discrepancy scores may be viewed as a prediction of their curriculum evaluations after transfer had been completed. The resulting scores are 11.55 for the LA transfers and 6.78 for the Business transfers. On the basis of these calculations, one might predict that the students who transfer will be substantially more satisfied after having transferred than they were with their programs in Tech. In examining these derived scores in greater detail, we noted that there was a decrease in discrepancy for ten out of thirteen scales for those who transfer to LA. The only sizeable increase was on the emphasis in management in which these students might see their ideal as being more satisfied in Tech rather than in Liberal Arts. Similarly, the Business transfers show decreased discrepancies on all but two scales, which are the emphasis on thinking vs. facts and techniques and the relative emphasis on integration of material.

85. Personal preferences and values.

In a final set of tables, we will review the data on personal outlooks and on the personality measures contained in this questionnaire. In response to the question on the importance of getting ahead in life (Table 4-19), both groups of transfer students are more likely to respond with very important than are the Tech students. In this respect, they resemble the students in the schools to which they transfer (Table 3-18). Those who drop out make choices substantially similar to those made by the Tech students. When asked about plans for the future being known clearly in advance (Table 4-20), those who transfer to LA are less likely to say that it is not very important than are either the LA or the Tech students. The choices of those who transfer to Business resemble those made by students in Tech and Business, as do the responses of those students who drop out. When asked about the importance of knowing how well you are doing in comparison to classmates, those who transfer to Business are most likely to state that it is important or fairly important: 93.2% vs. 85.2% for the Tech students (Table 4-21). Those who transfer to LA resemble most nearly the Tech students while those who drop out are most likely to state that it's not very important or unimportant: 30.9% vs. 14.8% for Tech. Data on the styles of life which characterize

TABLE 4-19

Percent Distribution on Importance of Getting Ahead in Life

Value	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Very important	55.5	69.0	50.0	47.6
Fairly important	29.6	27.7	43.5	47.2
Not very important	13.0	3.5	6.6	4.5
Very unimportant	1.8	0.0	0.0	0.7

TABLE 4-20

Percent Distribution on Importance of Plans for Future being Known Clearly in Advance

Value	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Very important	14.6	24.1	24.4	23.8
Fairly important	65.5	65.6	48.0	57.0
Not very important	16.4	6.9	23.6	17.4
Very unimportant	3.5	3.4	4.0	1.8

TABLE 4-21

Importance of Knowing How Well You Are Doing in Comparison to Classmates

Value	Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Very important	29.1	27.6	21.1	29.9
Fairly important	51.0	65.6	47.9	55.3
Not very important	16.4	3.4	25.2	14.4
Very unimportant	3.5	3.4	5.7	0.4

TABLE 4-22

Percent Distribution on Four "Styles of Life"

Style	Student's Classification			
	Transfer to LA	Transfer to Business	Dropout	Tech
Man of Action	16.7	38.0	27.9	31.6
Social Reformer	3.7	3.4	16.5	1.0
Man of Science	9.3	3.4	15.6	16.6
Artist, Dreamer	11.1	6.9	4.9	4.5
Mixed	59.2	48.3	50.0	46.3

the students are contained in Table 4-22.

Those who transfer to LA resemble the total LA population in that they are both quite heterogeneous groups in terms of characteristic style of life. Those who transfer to Business are rather mainly concentrated in the category of man of action (38.0%). The one unexpected finding about the dropouts is that this group contains a substantial number classified as social reformer (16.5%). We would conjecture that, for these students, social reform has less to do with political reform or social action but rather more with urban planning, urban renewal, and perhaps the applications of technology to the problems of developing economies.

In Table 4-23 are the data on the vocational preference scales previously described. For convenience, a second table (Table 4-24) has been prepared in which the values obtained for the transfer students are compared to those obtained for the Tech population and for the School to which the students transfer. Specifically, in Table 4-24, under "transfer to LA," the column Δ_{Tech} contains the average for those who transfer to LA minus the average for the Tech students and Δ_{LA} contains the transfer to LA averages minus those obtained for the LA population (see Table 3-23). Similarly, under transfer to Business, the column labelled Δ_{Tech} contains scores for Business transfers minus comparable scores for Tech and $\Delta_{Business}$ contains transfer scores minus those obtained for business. Finally, the scores for the dropout students are also compared to those for the Tech population. For each transfer group or those who drop out, a positive difference implies that the transfer group possesses more of that characteristic, on the average, and a negative difference less of that characteristic.

Those who transfer to LA differ in some important respects both from the Tech students and from those in Liberal Arts. When compared to the Tech

TABLE 4-23

Personal Preferences and Values

	Classification			
I. Intellectual Orientations	Transfer to LA	Transfer to Business	Dropout	Tech
Practical and Realistic	2.86	3.50	3.27	3.18
Intellectual	4.44	3.93	3.92	4.26
Artistic	1.50	0.75	1.17	0.84
Conventional	3.00	3.65	3.17	3.09
II. Interpersonal Orientations				
Socially responsible	1.78	1.64	1.69	1.44
Enterprising	2.08	3.21	2.14	1.61
Aggressive	3.17	2.70	2.68	2.20
Status Seeking	3.64	3.30	3.27	2.79
III. Personal Orientations				
Conscientious and sociable	3.25	2.93	3.72	3.51
Interest in masculine activities	3.67	4.06	3.83	3.78
Withdrawn and over-controlled	1.19	1.70	1.48	1.15

TABLE 4-24

A Comparison of Personal Preferences and Values of Transfer Students and Dropouts with Tech and the School to Which They Transfer

I. Intellectual Orientations	Transfer to LA		Transfer to Business		Drop-out
	Δ_{Tech}	Δ_{LA}	Δ_{Tech}	Δ_{Bus}	Δ_{Tech}
Practical and realistic	-0.32	+0.76	+0.32	+0.94	+0.09
Intellectual	+0.18	+0.36	-0.33	+1.17	-0.34
Artistic	+0.66	-0.43	-0.09	-0.87	+0.33
Conventional	-0.09	+0.47	+0.56	-0.70	+0.08
II. Interpersonal Orientations					
Socially responsible	+0.34	-0.77	+0.20	-1.01	+0.25
Enterprising	+0.47	+0.12	+1.60	-0.71	+0.53
Aggressive	+0.97	-0.34	+0.50	-1.06	+0.48
Status Seeking	+0.85	-0.72	+0.51	-1.02	+0.48
III. Personal Orientations					
Conscientious and sociable	-0.26	-1.09	-0.58	-1.55	+0.11
Interest in masculine activities	-0.11	+0.61	+0.28	+0.55	+0.05
Withdrawn and over-controlled	+0.04	-0.10	+0.55	-0.89	+0.33

students, the LA transfers are quite similar with respect to their intellectual and personal orientations. Both groups of students obtain high scores on the scale of intellectuality and moderate scores on being practical or realistic and conventional. Although neither group scores very highly on the artistic score, somewhat higher scores are obtained by those who transfer to LA. There are some differences on the three personal orientation scales. Also, on the interpersonal orientation scales, those who transfer to LA appear to value different patterns of interpersonal interaction than do the Tech students. The LA transfers are more enterprising, more aggressive, and more concerned with status than are the Tech students and somewhat more socially responsible with respect to their environments. If anything, the LA transfer students differ even more from the LA students. They have differing intellectual orientations. In addition to being less artistic and more conventional, they are more practical or realistic in outlook and slightly more intellectual. Under interpersonal orientations, they seem to fall somewhere between students in the two schools, for they are less socially responsible, less aggressive, and less status seeking than are the LA students. On personal orientations, the transfers to LA are less conscientious and sociable and somewhat more interested in masculine activities.

In similar fashion, those who transfer to Business differ both from those in Tech and those in Business. With respect to personal orientations, they differ only moderately from the Tech students, being more conventional, a little more practical, and somewhat less intellectual. On interpersonal orientations, they are considerably more enterprising, somewhat more aggressive, and somewhat more status seeking. Under personal orientations, they are somewhat less conscientious and somewhat more withdrawn and over-controlled. However, those who transfer to Business seem to differ even more from those in

Business. They differ with respect to all four intellectual orientation scales, being more practical, more intellectual, less artistic and less conventional. They also differ on all four of the interpersonal orientation scales, scoring considerably lower on each scale than do the business students. Further, on the personal orientation scales, they show lower scores for conscientious and sociable, for withdrawn and over-controlled, and higher scores on interest in masculine activities than do the Business students.

Finally, those who drop out appear to differ only in limited respects from the Tech students. Only under the heading of interpersonal orientations is there a consistent pattern of differences, with the dropouts being more enterprising, more aggressive, and more status seeking than those who persist in Tech.

§6. Discriminant analyses.

Two separate discriminant analyses have been carried out using the data on those students who entered Tech as freshmen. The procedure has been used in an attempt to predict which of those students would transfer to LA, to Business, would dropout, or would persist in Tech. The results of one analysis use the eleven personal preference scales (Table 4-23) and the thirteen scales on what a student would like ideally of his chosen curriculum (Table 4-17). For those who transferred to LA, Business, or who drop out, the total number of students does not exceed 135 and all available students were used. Since the number of Tech persistors does exceed 135, it was necessary to reduce the actual number by a random selection from the total group. Actually, three separate functions were defined, although it would appear that at most two contribute significantly to the classification. Coefficients for two of these functions are in Table 4-25. In Table 4-26 are the results of the classification scheme using these twenty-four variables. Correct classifications are made of 59% of those who transfer to LA, 57% of those who transfer to Business, 35.5% of the dropouts, and 55% of those who persist in Tech. Apparently one can predict with reasonable accuracy those students who will transfer or who will persist, although the classification of those who drop out is apparently much more difficult. This category includes students who leave voluntarily as well as those who are dismissed. Perhaps the accuracy of classification would be improved if this difference among those who drop out were not ignored. The value obtained for the generalized Mahalanobis D-Square statistic is 125, a result which is significant at $p < .001$ with 72 degrees of freedom.

In the second analysis, data from the eleven personal preference scales and the thirteen ratings on what a student expects realistically of his chosen curriculum were used. Coefficients for two of the three discriminant functions obtained are in Table 4-27. Results of the classification scheme using these 24 variables are shown in Table 4-28. As before, one can classify with reasonable accuracy those who transfer to LA (61%), the transfers to Business (61%), and those who persist (50%), but the accuracy with those who drop out is distinctly lower (35%). A value of 136 is obtained for the generalized Mahalanobis D-Square, a result which is significant at $p < .001$, with 72 degrees of freedom.

TABLE 4-25

Discriminant Function Coefficients Using Data on Eleven Scales of Personal Preferences and Thirteen on Ideal Evaluations of the Curriculum

Variable	Function Coefficients	
	I	II
Realistic	1.24	1.57
Intellectual	3.11	2.96
Social Responsibility	1.53	1.81
Conventional	1.71	2.15
Enterprising	-0.44	-0.04
Artistic	1.55	1.42
Aggressive	-0.32	-0.58
Conscientious	1.03	1.15
Masculine	2.04	2.19
Status	0.76	0.49
Withdrawn and Over-Controlled	0.32	0.30
Theory vs. Practice	1.40	1.58
Broad vs. Direct Relevance	-0.08	-0.32
Freedom of Choice	2.29	2.63
Emphasis on Citizenship	1.39	1.29
Thinking vs. Facts and Techniques	0.10	0.15
Difficult vs. Easy	0.73	0.63
Emphasis on Ability to Express	1.15	0.98
Emphasis on Integration	1.49	1.79
Emphasis on Understanding People	-1.30	-1.21
Emphasis on Management	1.02	0.94
Technical vs. Humanities	0.38	0.38
Emphasis on New Developments	1.08	1.06
Opportunity to Specialize	1.09	1.50
Constant	-36.89	-41.79

TABLE 4-26

Classification of Incoming Tech Freshmen as Transfers, Persistors, or Dropouts, Using Functions from Table 4-25

Actual Group	Predicted Group				
	Transfer to LA	Transfer to Business	Dropout	Tech	Total
Transfer to LA	29	5	7	10	51
Transfer to Business	0	16	5	7	28
Dropout	24	24	43	30	121
Tech	19	21	21	74	135

	Group Means on Discriminant Functions	
	I	II
Transfer to LA	36.89	35.75
Transfer to Business	40.65	41.79
Dropout	37.03	36.89
Tech	36.15	35.97

TABLE 4-27

Discriminant Function Coefficients Using Data on Eleven Scales of Personal Preferences and Thirteen on Realistic Expectations of the Curriculum

Variable	Function Coefficients	
	I	II
Realistic	2.40	2.44
Intellectual	2.39	2.15
Social Responsibility	1.83	1.76
Conventional	1.85	1.42
Enterprising	-0.36	-0.85
Artistic	1.23	1.39
Aggressive	-0.06	0.18
Conscientious	1.15	1.33
Masculine	2.56	2.80
Status	0.45	0.48
Withdrawn and Over-Controlled	0.76	0.69
Theory vs. Practice	0.50	0.51
Broad vs. Direct Relevance	0.85	0.77
Freedom of Choice	1.50	1.52
Emphasis on Citizenship	1.13	1.37
Thinking vs. Facts and Techniques	1.53	1.22
Difficult vs. Easy	1.60	1.69
Emphasis on Ability to Express	1.02	0.92
Emphasis on Integration	-0.22	-0.26
Emphasis on Understanding People	0.15	0.20
Emphasis on Management	0.01	0.13
Technical vs. Humanities	1.47	1.57
Emphasis on New Developments	0.15	0.23
Opportunity to Specialize	0.97	1.12
Constant	-40.34	-39.91

TABLE 4-28

Classification of Incoming Tech Freshmen as Transfers, Persistors, or Dropouts Using Functions from Table 4-27

Actual Group	Predicted Group				
	Transfer to LA	Transfer to Business	Dropout	Tech	Total
Transfer to LA	31	4	6	10	51
Transfer to Business	2	17	4	5	28
Dropout	23	25	42	31	121
Tech	24	16	28	67	135

	Group Means on Discriminant Functions	
	I	II
Transfer to LA	38.62	38.98
Transfer to Business	40.34	39.59
Dropout	39.17	39.91
Tech	38.74	39.48

CHAPTER FIVE

ANALYSIS OF CHANGE: LIBERAL ARTS, BUSINESS AND TECH

In the questionnaire administered to seniors, there were repeated a number of items from the freshman questionnaire. By comparing the responses, one is able to make some assessment of certain changes that have taken place in the outlook and values held by these students. In this chapter, there will be reviewed the data on change for those students who continue throughout their academic careers in the school to which they were originally admitted. Even while remaining within a school, a student may change from one department to another. However, for those students in the School of Business or the Technological Institute, change from one program to another is a matter of limited consequence. As a rule, such changes involve continued committment to a field of occupational activities, although there is change from one area of specialization to another within the same field. On the other hand, change within the College of Liberal Arts and Sciences may be much more extreme and we will introduce some data on the nature of the intra-school changes that are actually made.

Assuming for the moment that the career plans of these students were reasonably stable over a three-year period, what changes might one expect in their outlook and values? Let us assume that if one is committed to a profession or an occupational choice, that this committment functions as a primary objective for the individual. Moreover, to the extent that one remains committed to that objective, one is open to induction with respect to values that are consistent with that objective. To the extent that certain values appear to be means to an end, then one would expect the values to change toward consistency with that end. In a sense, one might suppose that a major objective, such as preparing oneself for entrance into an occupation, dominates certain values that are instrumental to the attainment of that objective. These secondary values ought to change toward greater consistency with the dominating objective. On the other hand, there may well exist values that are perceived as unrelated to a particular objective and these values should be less open to influence. This point of view about change in values is not unlike that proposed by Bidwell and Vreeland (1963) in which they have described certain types of colleges as inducting organizations. When a student commits himself to participation, he is open to the influence of a system of values that characterizes the organization.

There is a second respect in which students should change as a result of their college education. They should acquire new information about the nature of the occupations they have chosen, about the environments in which they may be expected to work, and about themselves and their capacities. All of these changes would be expected as a consequence of an increasing committment to an occupational change.

Finally, should ono expect changes in the personal orientations and values held by these students? Assuming that these students are beginning to achieve an occupational identity, which becomes integrated with an existing identity, then one would expect some changes in the personal orientations of these students as well as in their orientations toward interpersonal behavior.

§1. Long-range values and aspirations.

The seniors were asked about the standard of living they expected relative to that of their family. These results are summarized in Table 5-1 and can be compared to Table 3-6. Students in LA and Tech show little change but there is some increase in the number of Business students who expect a higher standard of living. Is this because the aspirations of these students have changed or

TABLE 5-1

Percent Distribution of Seniors' Expected Standard of Living Relative to That of Family

Expected Standard	College		
	LA	Business	Tech
Higher	49.5	60.3	59.0
Same	42.0	39.7	39.3
Lower	8.5	0.0	1.7

TABLE 5-2

Percent Distribution of Seniors' Expected Income Ten Years After Graduation

Expected Income	College		
	LA	Business	Tech
Less than $7,499	3.5	1.2	0.8
$ 7,500 - 9,999	14.9	2.4	5.2
$10,000-12,499	13.4	9.6	34.5
$12,500-14,999	20.3	41.0	40.5
$15,000-19,999	25.8	30.1	12.1
Over $20,000	22.3	15.7	6.9

TABLE 5-3

Comparison of Interquartile Ranges on Expected Income for Freshmen and Seniors

	LA	Business	Tech
Freshmen	$11,080	$9,700	$7,397
Seniors	$ 8,215	$2,534	$3,276

because their expectations about possible earnings have changed? Some relevant information is contained in Table 5-2 in which data on expected incomes ten years after graduation are contained (see Table 3-7). From this table, median expected incomes for students in the three schools have been computed. The median obtained for seniors in LA is $14,759 as compared to $16,028 as freshmen; for seniors in Business, the median is $14,780 vs. $14,190 as freshmen; for seniors in Tech it is $13,086 as compared to $12,661 as freshmen. Thus, expectations about income decrease for students in LA and increase slightly for students in Business and Tech. It is also of interest to look at the changes in distributions on expected income. The bimodal feature of the distributions which were obtained for the freshmen tends to disappear and, in general, the more extreme expectations, whether high or low, are decreased. Note, for example, that in all three schools, the expectation of an income exceeding $20,000 decreases. For students in Business and in Tech, but not Liberal Arts, the expectation of an income less than $10,000 also decreases. The fact that student expectations about income become more uniform can be documented by a comparison of interquartile ranges for freshmen and for seniors (Table 5-3), which shows a marked decrease in these ranges for all three schools. The interquartile range is defined as the difference between two values, the 25th and 75th percentiles for a given distribution. For freshmen, the dispersion is greatest for those in LA and least for those in Tech. As seniors, the dispersion for those in LA has decreased, but it still exceeds those obtained for the other groups of students. It is somewhat striking to note the relatively small dispersions obtained for the Business and Tech seniors.

Since expectations about income decrease only for those in Liberal Arts, we may suggest a possible explanation for this finding. In Table 5-11, it

TABLE 5-4

Percent Distribution of Seniors' Self-Perception of Socio-Economic Class

Social Class	College		
	LA	Business	Tech
Upper	10.4	6.2	3.5
Middle	79.2	84.5	78.5
Working	10.4	9.3	18.0

TABLE 5-5

Percent Distribution of Father's Occupation for Seniors at Present

Occupation	College		
	LA	Business	Tech
Agriculture	2.0	2.5	0.9
Skilled and Semi-skilled	12.4	9.6	22.2
Clerical or Sales	11.4	20.5	14.5
Business	9.9	14.5	11.1
Professional	28.7	12.0	13.7
Executive and Administrative	20.8	27.8	16.2
Engineering and Science	3.0	3.6	8.6
Deceased	6.9	4.8	7.7
Other	4.9	4.8	5.1

will be shown that career choices in medicine decrease substantially, to be offset by an increase in the number planning teaching careers. This fact alone may have much to do with the decrease in median expected income for Liberal Arts students.

Through an examination of the family background of the senior students, we may also be able to suggest an explanation for the increased expectation among Business students that their standard of living will exceed that of their parents. In Table 5-4 are data on the seniors' self-perception of socio-economic class. The distribution obtained for those in LA and Tech shows little change from that obtained from the freshmen (Table 3-1). However, for the Business students there is a decline in those who rate themselves as upper class, compensated for by an increase in the middle class category. Apparently, more of the Business seniors view themselves as upwardly mobile, and, therefore, as expecting rewards to exceed those obtained by their parents. This explanation is supported by the data on father's occupation at present (Table 5-5). When compared with Table 3-3, one notes for the Business students a decrease in parents from executive backgrounds and an increase in those with backgrounds in clerical work on sales. On the other hand, the distributions obtained for the other two schools are relatively unchanged.

Elsewhere, the seniors were asked to choose among being independent, successful, or well-liked (Table 5-6). The interest in success remains relatively unchanged (see Table 3-8). However, for all three schools, there is a substantial increase in those who want to be independent at the expense of those who prefer to be well-liked. When asked about how important it is to get ahead in life (Table 5-7), students in all three schools show a decrease in the percent who choose very important (see Table 3-18) and the decrease is most marked for those in Business. Apparently, it is not that getting ahead is unimportant,

TABLE 5-6

Percent Distribution of Seniors' Aspirations

Aspiration	College		
	LA	Business	Tech
Independent	41.5	34.6	36.8
Successful	38.6	44.5	44.5
Well-Liked	19.9	19.9	18.7

TABLE 5-7

Percent Distribution for Seniors on Importance of Getting Ahead in Life

Value	College		
	LA	Business	Tech
Very important	45.2	59.4	34.5
Fairly important	41.2	38.3	56.0
Not very important	11.1	1.3	8.6
Very unimportant	2.5	0.0	0.9

but rather that the importance is moderated.

When the seniors were asked about the most valued activities in life, results were obtained (Table 5-8) which differ only in minor ways from the choices made as freshmen (Table 3-9). To a slight extent, the value placed on one's career is moderated and the importance placed on one's family increases for students in Tech and Business. Family activities continue to receive the most first choices as the most valued activity in life. Although recreation does not become of major importance, there is some increase in the number who rate it as their third choice. Finally, it is of interest to note the pattern of choices for the three remaining activities. Among freshmen, more than 10% in each school make religion their third choice. These percentages decrease and approximately 90% of the seniors state that religious activities are of no importance (93.5% for LA, 92.8% for Business, and 87.2% for Tech). Similarly, the seniors continue to show little involvement with either community affairs or national and international affairs. On the whole, these seniors seem to limit their attention to family and career, moderated somewhat by a willingness to participate in recreational activities.

We will conclude this section with a review of the senior views of an ideal job and of their realistic expectations (Table 5-9). The column labelled I - R compares the percent who rate a category as highly important of an ideal job to the percent rating the same category as highly characteristic of a realistic job. Positive differences imply the extent to which seniors expect that desires will not be satisfied, while negative differences imply that realistic expectations exceed what would be highly important for an ideal job. As with the freshmen (Table 3-12), negative differences are obtained only for those in Liberal Arts. These seniors apparently expect adequate amounts of money, more than adequare returns in status and prestige, and

TABLE 5-8

Percent Distribution of Seniors' Views of the Most Valued Activities in Life

College	Activity											
	Career				Family				Recreation			
	1st	2nd	3rd	None	1st	2nd	3rd	None	1st	2nd	3rd	None
LA	37.6	46.5	8.9	7.0	49.5	35.2	8.3	7.0	3.9	6.0	52.5	37.6
Business	27.7	63.9	7.2	1.2	62.6	28.9	6.0	2.5	6.0	4.8	53.0	36.2
Tech	23.1	60.0	14.5	2.4	65.9	17.1	11.1	6.0	6.9	16.2	53.1	23.8

	Activity											
	Religion				Community Affairs				Nat. & Internat. Affairs			
	1st	2nd	3rd	None	1st	2nd	3rd	None	1st	2nd	3rd	None
LA	1.5	2.5	2.5	93.5	1.0	1.5	9.4	87.6	4.5	6.4	11.4	76.9
Business	1.2	1.2	4.8	92.8	0.0	1.2	20.5	78.3	1.2	0.0	9.6	87.2
Tech	1.7	3.4	7.7	87.2	0.0	0.9	6.8	92.3	0.0	0.0	3.4	96.6

TABLE 5-9

Percent Distribution of Senior Views of the Ideal Job
and of Their Realistic Expectations

Job Characteristic	College								
	LA			Business			Tech		
	I	R	I - R	I	R	I - R	I	R	I - R
Chance to use my abilities	86.4	57.5	+28.9	86.9	53.0	+33.9	83.0	43.6	+39.4
Chance to earn a good deal of money	30.7	35.2	- 4.5	59.1	42.1	+17.0	43.6	25.6	+18.0
Permit me to be original & creative	59.5	28.7	+30.8	60.3	9.6	+50.7	68.5	33.3	+35.2
Give me status and prestige	21.3	33.2	-11.9	36.2	22.9	+13.3	11.1	8.6	+ 2.5
Chance to work with people	57.5	61.0	- 3.5	49.5	49.5	0.0	27.4	23.1	+ 4.3
Provide a stable, secure future	44.0	40.6	+ 3.4	42.2	31.4	+10.8	47.0	47.0	0.0
Leave me free of supervision	62.5	29.7	+32.8	53.0	9.6	+43.4	48.7	3.4	+45.3
Chance to exercise leadership	43.5	23.8	+19.7	74.5	21.8	+52.7	46.1	12.8	+33.3
Chance for adventure	30.2	14.9	+15.3	29.0	8.5	+20.5	29.9	4.3	+25.6
Opportunity to help others	55.0	53.0	+ 2.0	26.5	21.8	+ 4.7	29.1	8.6	+20.5

about as much security as they desire. On the basis of these difference scores, it is apparent that seniors in Liberal Arts expect their ideals to be more nearly satisfied than do students in either Business or Tech.

In what respects do seniors expect large discrepancies between ideal and realistic expectations? Students in all three schools expect limitations in their opportunities for self-expression, in the chance to use their abilities or opportunities to be creative. Similarly, all students expect that they will not be sufficiently free of supervision, nor will they have sufficient opportunities to exercise leadership. With respect to these last two characteristics, the students in Business and Tech are most pessimistic, which may reflect their strong orientation to eventual careers in management and administration.

As an aid to the discussion of changes in outlook, Table 5-10 has been prepared, following the format of Table 4-14. For each school, responses for seniors have been compared to those of freshmen. Column ΔI contains the difference between freshmen and senior percentages on ideal ratings. A positive difference indicates that more freshmen rated a characteristic as highly important; a negative difference that it was more important to seniors. Column ΔR contains the difference between freshmen and seniors on realistic evaluations and the sign of the difference receives a similar interpretation. The final column labelled $|\Delta_F| - |\Delta_S|$ actually compares the absolute magnitude of the discrepancy scores for freshmen and seniors. A positive sign implies that the freshmen expected greater discrepancies between ideal and realistic choices than do the seniors; a negative difference implies a greater discrepancy on the part of the seniors. Which group is more pessimistic? In several respects, it is the seniors who expect the greater discrepancies, although seniors in LA show less extreme discrepancies than students in the other two

TABLE 5-10

Comparison* of Seniors vs. Freshmen on Ideal Job and Realistic Expectations

Job Characteristic	LA			Business			Tech		
	ΔI	ΔR	$\lvert\Delta_F\rvert - \lvert\Delta_S\rvert$	ΔI	ΔR	$\lvert\Delta_F\rvert - \lvert\Delta_S\rvert$	ΔI	ΔR	$\lvert\Delta_F\rvert - \lvert\Delta_S\rvert$
Chance to use my abilities	+ 1.7	+11.1	- 9.4	- 3.9	- 7.4	+ 3.5	+ 7.0	+19.0	-12.0
Permit me to be original & créative	- 7.1	- 4.2	- 2.9	-12.3	+10.4	-22.7	- 6.0	+ 2.7	- 8.7
Chance to earn a good deal of money	+ 8.7	+ 5.7	+ 3.0	+ 7.3	- 0.5	+ 7.8	- 4.7	+ 1.5	- 6.2
Give me status and prestige	+ 3.9	+ 2.5	+ 1.4	- 1.9	- 2.4	+ 0.5	+ 2.2	- 3.8	+ 6.0
Provide a stable, secure future	+19.3	+17.4	+ 1.9	+34.2	+19.5	+14.7	+19.5	+ 5.8	+13.7
Leave me free of supervision	-12.8	0.0	-12.8	- 1.0	+11.6	-12.6	- 1.8	+ 7.4	- 9.2
Chance to exercise leadership	- 2.4	+ 0.6	- 3.0	- 9.9	+16.5	-26.4	- 9.3	+ 5.4	-14.7
Chance for adventure	- 0.8	- 0.5	- 0.3	+ 0.7	+ 2.9	- 2.2	+10.5	+10.3	+ 0.2
Chance to work with people	+ 0.5	+ 0.0	+ 0.5	+ 8.2	- 1.5	+ 9.7	-10.2	- 8.8	- 1.4
Opportunity to help others	+11.8	+10.6	+ 1.2	+19.1	+ 0.5	+18.6	+ 8.9	+10.6	- 1.7

*Computations based on percentage for freshmen minus that of seniors schools. For example, among LA students, freshmen and seniors are about equally optimistic about the rewards to be obtained. Indeed, on a chance to earn money or status and prestige, both groups show realistic percentages that exceed what they consider as ideal. In addition, both groups expect adequate opportunities to work with people. LA seniors are somewhat more concerned with the opportunity to use their abilities or to work free from supervision.

Changes for students in Business are more complex. Seniors are more optimistic than freshmen about rewards and about opportunities to work with and to help people. They are more pessimistic about opportunities for originality and creativity, for being free of supervision, for being able to exercise leadership. A somewhat similar pattern of changes holds in Tech, with the seniors showing smaller discrepancies than the freshmen about rewards, about equal discrepancies for working with people, and larger discrepancies about opportunities for self-expression, for freedom from supervision, and for leadership. It is tempting to infer that students recognize that ours is a prosperous society and that ample rewards will be forthcoming. However, it is an organized society. As such, one may have ample opportunities to work with people. But one will work under constraints and limitations.

82. Career expectations and evaluations.

In another series of questions, information about the career plans of seniors was obtained which will be compared to similar information obtained from the freshmen. Among the LA freshmen, there were a large number of choices for careers in medicine or dentistry (43.1%). Choices among LA seniors show a marked decline in this category to 26.8%. Undoubtedly this reflects in part an awareness of the difficulties to obtaining admission to medical school. On

TABLE 5-11

Percent Distribution for Career Aspirations of Seniors

Position	Ideally upon graduation	Realistically upon graduation	At peak of career
	Liberal Arts		
Management	8.0	7.5	22.8
Sales	1.5	1.5	0.0
Teaching	24.2	23.2	16.8
Basic Research	4.0	3.5	0.5
Applied Research	2.5	3.0	0.5
Physician or dentist	26.8	24.3	24.3
Lawyer	19.3	17.4	20.3
Armed Services	2.0	5.0	2.5
Undecided	7.9	8.9	10.4
Other	3.8	5.7	1.9
	Business		
Management	42.1	33.7	0.8
Sales	14.5	18.1	0.0
Applied Research	2.4	1.2	0.0
Accounting or Finance	15.7	15.7	4.8
Lawyer	18.1	16.9	18.3
Armed Services	1.2	6.0	0.0
Undecided	4.8	6.0	4.9
Other	1.2	2.4	1.2
	Tech		
Management	15.4	2.6	70.0
Production	0.0	1.7	0.0
Sales	4.3	4.3	0.0
Teaching	4.3	3.4	6.0
Equipment Design	2.6	1.7	0.0
Basic Research	16.2	7.7	6.0
Applied Research	1.7	4.3	0.0
Engineer (unspecified)	27.3	39.3	4.3
Chemical Engineer	1.7	1.7	0.0
Civil Engineer	1.7	2.6	0.0
Electrical Engineer	8.6	9.4	0.9
Industrial Engineer	2.6	4.3	0.0
Science	1.7	0.9	0.0
Medicine	0.9	0.9	1.7
Law	0.9	0.9	0.0
Armed Services	0.9	2.6	1.7
Undecided	7.7	9.4	9.4
Other	1.5	2.3	0.0

the other hand, a substantial number of seniors continue to plan careers in law (19.3% for seniors vs. 15.4% for freshmen). The other major change among LA students is that a large number of seniors apparently plan careers in teaching, for this choice ideally upon graduation increases from 7.4% to 24.2%. For LA seniors as well as freshmen, there is a substantial number who expect to be employed in management at the peak of their career.

Among Business students choices of seniors very closely resemble those of freshmen. Positions in management are strongly chosen by both groups. Seniors are somewhat more likely to plan a career in sales upon graduation, although at the peak of their career, they apparently expect to find themselves in a position of management. The emphasis on law continues and more seniors than freshmen expect to be lawyers at the peak of their careers. The choices of engineers also show little change. Seniors are somewhat more likely to expect careers in management and this choice at the peak of their careers is made by 70.0% of the seniors in comparison to 60.6% for the freshmen. Among seniors, there are fewer choices for a specific field of engineering, either ideally or realistically upon graduation. The only field which clearly maintains its number of choices is electrical engineering. It is also of interest to note a change in the pattern of choices in basic or applied research. Whereas freshmen are more likely to choose applied research, the seniors are much more likely to indicate a desire for a career in basic research.

When asked about their feelings about their chosen careers, seniors indicate that there has been little increase in committment to a specific career. Among seniors as well as freshmen, most students state that their chosen career is one of several that would be equally satisfying. Perhaps, the committments of college students must remain tentative until they have had actual work experience that they can evaluate.

TABLE 5-12

Percentage Distribution of Seniors' Feelings About Their Chosen Career

Feelings	College		
	LA	Business	Tech
Only one really satisfying	33.5	22.0	20.5
One of several	58.0	69.5	61.5
Not the most satisfying	3.0	3.7	9.4
Chosen without considering whether others might be more satisfying	5.5	4.8	8.6

TABLE 5-13

Percent Distribution for Seniors' First Consideration of Entering This Program

Time of First Consideration	College		
	LA	Business	Tech
Before high school	11.0	6.0	8.6
During high school	33.5	28.9	59.0
During freshman year	8.0	18.1	6.8
After freshman year	47.5	47.0	25.6

In order to explore further these decisions of committment to an occupation, some additional questions were included in the senior questionnaire on other choices that had been considered and on the time of first consideration of their current choice. In Table 5-13 there are summarized responses to the question of when a student first gave consideration to the program of study in which he is currently enrolled. Seniors in LA and Business show almost identical patterns of choice. Most of these students first gave consideration to the current program during their college years, with many of them postponing their choice until after their freshman year (47.5% for LA and 47.0% for Business). By way of contrast, Tech students had first considered their choices prior to entering high school or while they were in high school. In fact, 66.7% of the Tech students had thought about these choices before entering college. Apparently, students in Tech begin to make tentative career committments at a much earlier time than do students in LA or Business.

In other questions, some information was returned about the range of choices considered and about the stability to these choices. When asked, before you made up your mind, had you seriously considered any other field, 74.8% of the LA seniors, 67.5% of those in Business, and 65.0% of those in Tech state that they had. Students were asked to list these other fields and a rather broad range of alternatives was described. In Table 5-14 are listed the ten fields for each school receiving the highest frequencies of choice. Among Liberal Arts students most of the fields listed would normally involve enrollment in a Liberal Arts undergraduate program. The major exception is that a number of students had seriously considered the profession of engineering. The Tech seniors limit their alternatives to other branches of engineering, science including mathematics, and the professions of medicine and law. One has the impression that the orientations of students who persist in LA and those who

TABLE 5-14

Ten Fields Most Likely* to Have Been Considered Before Making Present Choice

Liberal Arts	Business	Tech
Medicine	Engineering (unspecified)	Mathematics } tied
Engineering (unspecified)	Electrical Engineering	Medicine
Education	Medicine	Electrical Engineering
History	Chemical Engineering	Mechanical Eng. } tied
Physics } tied	Civil Engineering } tied	Physics
Law	Accounting	Chemical Eng.
Art & Philosophy } tied	Law	Science (unspecified)
Mathematics	Industrial Eng.	Business (unspecified)
Journalism	Mechanical Eng. } tied	Chemistry } tied
Political Science	Business (unspecified)	Law

*Listed in decreasing frequency of choice

TABLE 5-15

Seven Most Likely* Curricula in Which Students Were Once Enrolled Prior to Present Choice

Liberal Arts	Business	Tech
Pre-Medical	LA (unspecified) } tied	Science-Engineering
Mathematics	Pre-Medical	Chemical Engineering } tied
Physics } tied	Economics } tied	Electrical Eng.
Political Science	English	Mechanical Engineering
Biology	Predental } tied	Civil Engineering
Chemistry	Education	
History		

*Listed in decreasing frequency of choice persist in engineering must have diverged at a relatively early date. What they have in common is that students in both groups have given some consideration to careers in medicine, law, and science. The Business students, on the other hand show considerable overlap with the students in Tech in that a number of possibilities from within the field of engineering were previously given consideration.

In addition, students were asked whether they had changed from one curriculum to another. Affirmative responses are given by 34.2% of the seniors in LA, 41% of those in Business, and 30.8% of those in Tech. Since these students had never changed from one school to another, then presumably these are changes within a school from one program to another. In Table 5-15 are listed the seven curricula in each school in which students were previously enrolled that receive the highest frequencies of choice. The results for LA or for Tech are not surprising. For example, in LA, one notes that pre-medical ranks highest as a curriculum in which a student was previously enrolled. This abandonment of plans for a career in medicine is consistent with other data already introduced. In Tech one notes primarily a movement from one engineering curriculum to another.

The responses for seniors in Business may at first seem perplexing, for the alternatives are mostly to be found in Liberal Arts. However, the Business students had available a so-called "Liberal Arts" option and these data imply a change in orientation from within this option.

The significance of these data on curriculum change can be augmented by comparison with some additional data on actual curriculum choices for freshmen and for seniors. In Table 5-16 are the curriculum choices for Liberal Arts. The choice showing the largest decrease is pre-medical. The two choices showing the largest increases are for programs in the Social Sciences and in the

TABLE 5-16

A Comparison* of Curriculum Choices for Freshmen and Seniors in Liberal Arts

Curriculum Choice	Freshmen	Seniors
Social Sciences	2.1	11.4
Biology or Chemistry	4.8	6.1
Pre-Medical	48.9	26.2
Pre-Dental	3.8	1.5
Pre-Law	7.0	6.1
Political Science	10.3	13.1
Physics	4.8	3.0
Mathematics	4.2	4.5
Humanities	5.7	22.2
Economics	2.2	5.0
Undecided	6.4	0.5

*Percent responses

TABLE 5-17

A Comparison* of Curriculum Choices for Freshmen and Seniors in Business

Curriculum Choice	Freshmen	Seniors
Accounting	20.4	23.2
Finance	17.9	17.1
Marketing	13.6	14.7
LA Minor	6.2	26.9
Pre-Law	11.1	6.1
Undecided	30.9	12.2

*Percent responses

TABLE 5-18

A Comparison* of Curriculum Choices for Freshmen and Seniors in Tech

Curriculum Choice	Freshmen	Seniors
Chemical	17.1	12.6
Civil	8.8	7.2
Electrical	28.5	28.8
Industrial	5.2	21.6
Mechanical	16.1	12.6
Science-Engineering	18.1	16.2
Undecided	6.2	0.9

*Percent responses

Humanities (English, History, Philosophy, etc.).

In Table 5-17 are similar data for students in Business. Among these students, there are few decreases except for the category of undecided. Interestingly enough, there is a substantial increase in the number who choose a Liberal Arts minor rather than one of the more specialized programs.

Similar data for students in Tech are contained in Table 5-18. In this case, there is a small decline in the percent choosing each of the specialized fields of engineering, with the exception of Electrical, which shows no decrease. Only Industrial Engineering and Management Science shows a significant increase, which may be partly explained by the consistent orientation of the Tech students toward eventual careers in management.

Elsewhere seniors were asked to specify which qualities on a particular list of alternatives were essential for success in one's chosen career (Table 5-19). These data can be compared to the data obtained from freshmen in Table 3-14. The comparison will be made using the organization of categories under four headings that is summarized in Table 3-15. The LA seniors place about as great importance on personal abilities as do the freshmen (1, 2, 11). It is interesting to note that the seniors place less emphasis on the five acquired abilities and measures of effort (7, 8, 10, 12, 13). They seem to feel that what you learn is less essential and that devotion to work is less critical. With respect to interpersonal skills (4, 5, 6, 9, 15, 17), the LA seniors show a more complex pattern of change. There is a decreased emphasis on the ability to get people to like you or on understanding people. There is little change in the other four qualities. Finally, on favorable events in the environment (3, 14, 16), there is little change, although the seniors are more likely to rate "luck" as essential for success. In total, the seniors in LA appear to be a little more cynical in what qualities are essential for a successful career.

TABLE 5-19

Percentage Distribution for Seniors on Qualities Essential for Success in One's Chosen Field

Quality	College		
	LA	Business	Tech
1. Ability to express yourself	73.9	89.0	84.5
2. Special talent or aptitude	48.5	40.3	47.9
3. Luck	16.8	36.6	16.2
4. Leadership ability	33.2	58.5	49.6
5. Ability to get people to like you	46.0	66.0	39.3
6. Understanding people	71.5	76.9	54.6
7. Good grounding in basic theory	53.5	36.6	64.0
8. Practical knowledge of facts in field	76.9	67.1	79.5
9. Ability to persuade	52.0	80.5	52.1
10. Devotion to work	73.4	56.1	63.1
11. High degree of intelligence	48.1	25.6	34.2
12. Knowledge of special techniques	38.6	29.3	37.6
13. Hard work	81.3	79.4	77.0
14. Knowing influential people	13.9	33.0	12.0
15. Social poise	21.3	40.3	18.8
16. Having capital or access to it	13.9	18.3	8.6
17. Administrative ability	36.2	79.4	59.0

The Business seniors exhibit fewer changes. They place less importance on a practical knowledge in the field and on devotion to work but show only a minor decrease in emphasis on interpersonal skills or administrative ability. Although they are more likely to emphasize the importance of luck, they are less concerned with having capital or access to it.

The Tech seniors, in general, place high importance on ability and effort, although the seniors place less reliance on a special talent. They do place increased emphasis on a good grounding in basic theory. They continue to place moderate emphasis on interpersonal skills and a relative emphasis on favorable events in the environment. In order to document the degree of consistency between freshmen and senior ratings, rank order correlations have been computed for freshmen vs. seniors by school. In LA, the correlation obtained is 0.95; in Business, it is 0.87; and in Tech, it is 0.92.

Finally, to conclude this section on career orientations, data on factors influencing the decision to attend college are contained in Table 5-20, to be compared to similar data in Table 3-10. Some of the changes that are apparent are somewhat unexpected. To be specific, motives having to do with preparation for a career would appear to be measured under the heading of gain professional skill or intrinsic interest in learning in my field. The proportion who state that these reasons are of great importance decreases rather substantially for students both in LA and in Business and decreases somewhat for students in Tech. Students in LA or Business are somewhat more likely to rate general intellectual growth as of great importance, although this factor remains only somewhat important for most students in Tech. Students in all three schools continue to rate avoiding a low-level job as a factor of significant influence. In these responses, as in other data previously discussed, one has the impression that the involvement of students in preparation for a career has moderated somewhat over this period of time.

TABLE 5-20

Percent Distribution for Seniors on Factors Influencing the Decision to Attend College

School	Factor											
	Gain Professional Skills			Intrinsic Interest in Learning in My Field			General Intellectual Growth			Avoid Low-Level Job		
	Influence			Influence			Influence			Influence		
	Great	Some	None	Great	Some	None	Great	Some	None	Great	Some	None
LA	55.0	31.7	13.4	34.6	48.0	17.3	45.0	41.1	13.9	42.5	32.7	24.8
Business	44.5	53.1	2.4	18.5	59.4	22.1	34.6	38.3	27.1	56.8	29.6	13.6
Tech	75.1	23.9	1.0	40.2	48.6	11.2	17.9	53.9	28.2	56.4	27.3	15.3

§3. Educational evaluations.

From the data contained in the section just concluded, it seems clear that the career objectives of these students have changed over the three-year period. The importance of career preparation has been moderated. Students seem to be reasonably confident that careers bring rewards but to be more concerned with a desire for independence and with possibilities for self-realization. In addition, the interest in specialization has decreased and students, particularly in Business and in Tech, continue to anticipate that their initial career choices will eventually lead to careers in management. In the light of these changes, one would also expect that these students' evaluations of their curricula should also change.

In Table 5-21 are data from seniors on what an ideal curriculum should have been like and realistically how they evaluate what they have actually been experiencing. These data are to be compared to responses to a similar set of ratings made by freshmen (Table 3-17) as they were just beginning their programs of study. As an aid in interpretation, a comparison of median scores for freshmen and seniors is summarized in Table 5-22. In this table, column ΔI includes freshmen medians minus median scores for seniors, while column ΔR contains a similar comparison of the realistic ratings. Since the direction of the items has no fixed implication, no simple interpretation can be made of the sign of the difference. For purposes of discussion, these curriculum headings will be grouped under the three headings used before of (1) characteristics of the subject matter (ratings 1, 2, 5, 12, 13); (2) subjects and skills that go beyond vocational preparation (ratings 4, 7, 9, 10, 11); and (3) the administration and organization of the curriculum itself (ratings 3, 6, 8).

First of all, let us review those changes that are common to students in all three schools. Under general characteristics of the subject matter, students

TABLE 5-21

Senior Views of Their Chosen Curriculum: Ideally and Realistically

Curriculum Characteristic	College					
	LA		Business		Tech	
	I	R	I	R	I	R
1. Theory vs. Practice	3.80	2.48	4.41	4.66	3.90	2.22
2. Broad vs. Direct Relevance	2.34	1.97	2.50	2.91	2.31	2.21
3. Freedom of Choice Yes → No	1.73	2.23	2.06	4.06	2.34	5.75
4. Emphasis on citizenship No → Yes	5.52	5.05	5.27	4.39	4.68	2.62
5. Thinking vs. Facts & Techniques	2.62	3.29	2.44	3.69	2.54	2.69
6. Difficult vs. Easy	2.55	2.83	2.98	2.89	2.65	1.77
7. Emphasis on Ability to Express Yes → No	1.45	4.47	1.20	3.75	2.11	5.70
8. Emphasis on Integration Yes → No	2.87	5.38	2.50	3.86	2.14	4.89
9. Emphasis on Understanding Yes → No	2.07	3.50	2.03	3.03	3.77	6.53
10. Emphasis on Management Yes → No	4.88	6.41	1.70	2.56	2.93	6.33
11. Technical vs. Humanities	5.91	5.48	4.50	3.19	3.29	2.26
12. Emphasis on new developments Yes → No	1.91	2.91	2.19	3.41	2.33	3.78
13. Opportunity to specialize Yes → No	4.50	4.79	4.38	3.66	3.84	4.38

TABLE 5-22

Comparison* of Seniors vs. Freshmen on Ideal Curriculum and Realistic Evaluations

Curriculum Characteristic	College					
	LA		Business		Tech	
	ΔI	ΔR	ΔI	ΔR	ΔI	ΔR
1. Theory vs. Practice	+0.97	+1.69	+0.96	-0.06	+0.39	+1.33
2. Broad vs. Direct Relevance	+0.79	+0.92	+0.72	+0.24	+0.39	+0.98
3. Freedom of Choice Yes -> No	+0.56	+1.64	+0.26	-0.67	+0.55	-1.01
4. Emphasis on Citizenship No -> Yes	-0.42	-1.01	-0.35	-0.13	-0.21	+0.36
5. Thinking vs. Facts &Techniques	+0.57	+0.42	+0.56	-0.26	+0.41	+0.66
6. Difficult vs. Easy	-0.27	-1.05	-0.62	-0.87	+0.12	-0.13
7. Emphasis on Ability to Express Yes -> No	-0.32	-1.94	-0.35	-1.86	-0.70	-2.77
8. Emphasis on Integration Yes -> No	-0.35	-2.21	-0.14	-0.69	+0.21	-1.68
9. Emphasis on Understanding Yes -> No	-0.66	-1.02	-0.63	-0.54	-0.99	-2.32
10. Emphasis on Management Yes -> No	-1.76	-2.19	-0.92	-0.98	-0.27	-2.36
11. Technical vs. Humanities	-1.48	-1.38	-0.16	+0.47	-0.12	+0.44
12. Emphasis on New Developments Yes -> No	+0.50	+0.33	+0.12	-0.39	+0.08	-0.34
13. Opportunity to Specialize Yes -> No	-1.00	-1.23	-1.00	-0.69	-0.64	-1.30

*Comparison based on freshmen median scores minus median scores for seniors in all three schools move toward a greater emphasis on theory as ideal, although the shift is least for those in Tech. However, the Tech students began as freshmen with the strongest desire for this characteristic. Similarly, they all show an increased desire for a curriculum of considerable breadth and a decreased desire for an opportunity to specialize. Students in LA would like a program with greater emphasis on new developments, although there is little change in the outlook of students in Business and Tech. Thus, in summary, there seems to be a general increase in acceptance of the idea that theory is good and that broad preparation is to be desired. With respect to the non-vocational aspects of the program, there is a somewhat uniform increase in the desire that a curriculum should prepare one for responsibilities as a citizen and a decreased desire for an emphasis on the ability to express oneself. However, in this latter case, note that the ideal ratings on this characteristic were extremely high for freshmen and remain quite high for seniors. Similarly, there is a decreased emphasis on the need for learning to understand people. For the last two ratings under this heading, there is a difference of opinion between those in LA and those in Business and Tech. The LA seniors show a rather significant decrease in the importance of preparation for management although students in the remaining two schools show little change in their ratings. Similarly, those in LA show by an increase in their ratings that they value even more highly a program that is not limited to professional preparation but also emphasizes preparation in the humanities. This divergence serves once again to illustrate the involvement of those in Tech and Business with eventual positions in management in contrast to the choices of those in LA for careers in the more independent professions.

Under the third heading, there is a rather uniform increase in the desire for a program with considerable freedom of choice —one that would ideally be a little less difficult. However, students in LA and Business are less interested in a program that provides for some integration of separate courses, although those in Tech would prefer somewhat more emphasis on this characteristic.

From the changes in realistic ratings, we can observe in what respects the realistic expectations of freshmen have been modified by actual experiences. Those in LA and Tech apparently come to recognize that there is a much greater emphasis on theory than they had originally anticipated, although the seniors in Business apparently feel that the program was about as practical in orientation as they had expected. Students in all three schools apparently recognize more breadth to their programs than they had originally expected, more emphasis on the ability to think logically and abstractly, and less emphasis on specialization. Students in LA and Business indicate that their programs place more emphasis on new developments than they had expected, although a change in the reverse direction holds for the seniors in Tech. In short, coupled with the increased acceptance of theory and a broad, unspecialized curriculum, students tend to recognize that the actual programs are more in line with these characteristics than they had expected.

In reviewing those characteristics that go beyond professional preparation, one notices a sense in which students come to believe even more strongly that the programs are more narrow than is desirable. Students in all three schools show an increase in their evaluation that the programs are not concerned with the ability to express, with an emphasis on understanding people, or with preparation for management. There is a divergence of opinion on two items. Seniors in Tech show a shift toward recognizing more emphasis on preparation for citizenship, although students in the other two schools recognize less of an emphasis than they had expected as freshmen. Similarly, seniors in LA recognize more of an emphasis on the humanities than they had expected as freshmen, although Business and Tech students note even less of an emphasis than they had originally expected.

In the third area of evaluation, on the organization of the curriculum, seniors show a more complex pattern of change when compared to freshmen. The LA seniors feel that there is even more freedom of choice than they had expected, but the judgments of Business and Tech students are strongly in the opposite direction. Interestingly enough, seniors in all three schools feel that the program has been easier than they originally expected, an evaluation which may follow from the fact that these students have now successfully completed most of their program of studies. On the question of an opportunity to integrate material into an organized whole, students in all three schools believe that there is much less of an opportunity than they had originally expected.

There is one additional question to raise about the evaluations of these seniors of their programs of study. Are they more or less satisfied than they had expected to be when they began as freshmen? Some tentative answers can be obtained to this question from an examination of the data in Table 5-23. In this table, column Δ_F contains the difference between ideal and realistic medians for freshmen and Δ_S, the same difference for seniors. Note, first of all, that the direction of the discrepancies tends to be the same for freshmen and seniors, with four interesting exceptions. On rating 6, LA freshmen expected the program to be too difficult; the seniors feel that it is easier than it need be. In ratings 1 and 2, freshmen in Business expected the program to be more theoretical and broader than they would desire; seniors evaluate these discrepancies in the opposite direction. In rating 13, Tech freshmen expected more than enough opportunity to specialize; Tech seniors feel that there was insufficient opportunity.

TABLE 5-23

Comparison of Seniors vs. Freshmen on Discrepancies Between Ideal Curriculum and Realistic Expectations

Curriculum Characteristic	College					
	LA		Business		Tech	
	Δ_F	Δ_S	Δ_F	Δ_S	Δ_F	Δ_S
1. Theory vs. Practice	+0.60	+1.32	+0.77	-0.25	+0.74	+1.68
2. Broad vs. Direct Relevance	+0.24	+0.37	+0.07	-0.41	+0.01	+0.10
3. Freedom of Choice Yes -> No	-1.58	-0.50	-1.07	-2.00	-1.85	-3.41
4. Emphasis on Citizenship No -> Yes	+1.06	+0.47	+0.66	+0.88	+1.49	+2.06
5. Thinking vs. Facts & Techniques	-0.52	-0.67	-0.43	-1.25	-0.40	-0.15
6. Difficult vs. Easy	+0.50	-0.28	+0.34	+0.09	+1.13	+0.88
7. Emphasis on Ability to Express Yes -> No	-1.40	-3.02	-1.04	-2.55	-1.52	-3.59
8. Emphasis on Integration Yes -> No	-0.65	-2.51	-0.81	-1.36	-0.86	-2.75
9. Emphasis on Understanding Yes -> No	-1.07	-1.43	-1.09	-1.00	-1.43	-2.76
10. Emphasis on Management Yes -> No	-1.10	-1.53	-0.80	-0.36	-1.31	-3.40
11. Technical vs. Humanities	+0.33	+0.43	+0.68	+1.31	+0.47	+1.03
12. Emphasis on New Developments Yes -> No	-0.83	-1.00	-0.71	-1.22	-0.93	-1.45
13. Opportunity to Specialize Yes -> No	-0.06	-0.29	+0.41	+0.72	+0.12	-0.54

Secondly, the absolute magnitude of the discrepancies tends to increase for students in all three schools. In LA, ten out of the thirteen discrepancy measures increase, ten out of thirteen in Business, and eleven out of thirteen in Tech. There is another way to examine this change in discrepancy scores for freshmen and seniors. The sum of the absolute value of all discrepancy scores has been computed for freshmen and seniors in each of the schools. For students in LA and Business, there is a moderate increase in this sum when seniors are compared to freshmen: 9.94 for LA freshmen vs. 13.82 for LA seniors and 8.88 for Business freshmen vs. 13.90 for Business seniors. The increase in total discrepancy is more marked in Tech, with a total of 12.26 for Tech freshmen and 23.80 for Tech seniors. In general, seniors see increased discrepancies between what would be ideal and what holds realistically, and the increase is most striking for those in Tech.

In the senior questionnaire, some rating scales were included in order to obtain some overall evaluations of the total experience to date. A summary of these responses is contained in Table 5-24. These were eight point rating scales and the medians can range from 0.5 to 7.5. One of the interesting findings is that students in LA, who in some respects deserve to be most satisfied with their programs of study, are relatively more negative in their evaluations of the university experience. When asked how satisfied they feel about coming to Northwestern, LA seniors are least satisfied, Business and Tech seniors about equally satisfied. When asked whether or not the administration does a good or poor job, Tech responses are the most favorable, Business students less favorable and LA seniors least favorable of all.

However, when asked to evaluate their feelings about their chosen field of study, LA students are most satisfied, Business students least satisfied. When asked to evaluate the faculty of their department, students in all three schools

TABLE 5-24

Senior Responses to Questions Evaluating Their Overall College Experience (Mean Values)

Question	College		
	LA	Business	Tech
1. Coming to Northwestern Sorry -> Glad	5.51	5.80	5.76
2. The administration does a good job -> poor job	4.72	4.45	4.18
3. Of chosen field of study sorry -> glad	6.68	6.27	6.43
4. The faculty of my department do poor job -> good job	5.64	5.77	5.65
5. Of my program of students, I'm disappointed -> pleased	5.38	5.27	5.40
6. Of the student body, I'm proud -> disappointed	4.30	4.08	4.14

give reasonably high ratings and on their feelings about their chosen program of studies, there is little difference among students in the three schools. Finally, when asked about their associations with the Northwestern student body, those in LA are somewhat more negative, with those in Business most favorably inclined. To some extent, the data imply that broad judgments of this nature are interpretations, based partly upon common experiences and based partly on different outlooks which lead to differences in interpretation of these experiences.

84. Personal preferences and values.

Finally, there are data in the senior questionnaire which permit us to evaluate certain changes in the personal orientations of these students that have taken place over this three-year period. When asked about the importance of plans for the future being clearly known in advance, over 50% of the seniors still reply that it is moderately important (Table 5-25). There is a slight increase for all schools in the number of students who respond with "not very important." Similarly, when asked about the importance of knowing how well you are doing in comparison to classmates, seniors indicate a decrease in importance when compared to freshmen (Table 5-26). Apparently seniors have developed some internalized standards for evaluating their own performance and are less dependent upon a comparison with the performance of others.

In the senior questionnaire, the brief personality test on four "styles of life" was repeated and the results are contained in Table 5-27. The results are not particularly different from those obtained with the freshmen (Table 3-21). Omitting the category of mixed, Tech seniors continue to fall predominantly into the two categories of man of action and man of thought. In Liberal Arts, there continue to be substantial numbers in all four categories. There is moderate heterogeneity to the group of seniors in Business; only one

TABLE 5-25

Percent Distribution for Seniors of Importance of Plans for Future Being Clearly Known in Advance

Value	College		
	LA	Business	Tech
Very important	21.4	19.8	17.3
Fairly important	51.2	55.6	57.0
Not very important	21.9	23.5	25.0
Fairly unimportant	5.5	1.1	0.7

TABLE 5-26

Importance for Seniors of Knowing How Well You Are Doing in Comparison to Classmates

Value	College		
	LA	Business	Tech
Very important	14.4	11.1	21.4
Fairly important	49.5	48.1	50.4
Not very important	29.2	35.8	25.6
Very unimportant	6.9	5.0	2.6

TABLE 5-27

Percent Distribution for Seniors on Four "Styles of Life"

Style	College		
	LA	Business	Tech
Man of Action	16.9	25.9	34.5
Social Reformer	8.6	9.9	1.7
Man of Thought	11.4	1.2	13.8
Artist, Dreamer	18.4	11.1	5.2
Mixed	44.7	51.9	44.9

category, that of man of thought describes a very small number of students.

The Holland Vocational Preference Inventory was also included in the senior questionnaire and the median responses on the eleven scales are summarized in Table 5-28. As an aid to interpretation, the median scores for seniors in each school have been compared to median scores of freshmen in the same school (Table 3-22) and the differences, senior minus freshmen medians, are contained in Table 5-29.

In general, the intellectual orientations of these students change relatively little. Students in all three schools show a moderate increase in artistic orientation, with students in LA having the strongest orientation, students in Business next, and in Tech the least. Changes in intellectual orientation are minor, with a slight decrease obtained for those in LA and a modest increase for those in Business. In studies of student values, one often wishes to determine whether or not students become more or less conventional. Using this particular measure of conventional, students in LA and Business show little change. Students in Business continue to score quite high, those in LA much lower. The scores on conventional outlook increase somewhat for those in Tech. In short, there is apparently little reason to believe that these students become any less conventional as a result of their college experiences.

It is in the area of interpersonal orientations that one observes the largest changes, particularly for those students in Tech. For example, seniors in LA score higher on the scale of social responsibility, somewhat higher on the scales of enterprising and aggressiveness. As freshmen they obtained very high scores on the status seeking scale and these scores are maintained and insignificantly increased. Under interpersonal orientations, Business students show a sizeable increase on the aggressive scale and moderate increases on socially responsible and status seeking. The Tech seniors show substantial

TABLE 5-28

Personal Preferences and Values of Seniors

I. Intellectual Orientations	College		
	LA	Business	Tech
Practical and realistic	2.13	2.66	3.13
Intellectual	3.85	3.21	4.36
Artistic	3.46	2.13	1.56
Conventional	2.60	4.43	3.49
II. Interpersonal Orientations			
Socially responsible	3.65	3.29	2.15
Enterprising	2.38	3.84	2.83
Aggressive	3.98	4.79	3.42
Status Seeking	4.56	4.76	3.75
III. Personal Orientations			
Conscientious and sociable	3.96	4.67	3.60
Interest in masculine activities	3.35	3.73	3.97
Withdrawn and over-controlled	2.27	3.31	1.57

TABLE 5-29

Changes in Personal Preferences and Values of Seniors as Compared to Freshmen

I. Intellectual Orientations	College		
	LA	Business	Tech
Practical and realistic	+0.03	+0.10	-0.05
Intellectual	-0.23	+0.45	+0.10
Artistic	+0.53	+0.51	+0.72
Conventional	+0.07	+0.08	+0.40
II. Interpersonal Orientations			
Socially responsible	+1.10	+0.64	+0.71
Enterprising	+0.42	-0.08	+1.22
Aggressive	+0.47	+1.03	+1.22
Status Seeking	+0.20	+0.44	+0.96
III. Personal Orientations			
Conscientious and sociable	-0.38	+0.19	+0.09
Interest in masculine activities	+0.29	+0.22	+0.19
Withdrawn and over-controlled	+0.98	+0.72	+0.42

increases on all four scales. As freshmen, they scored lower on these scales than did students in LA or Business; as seniors their scores increase, although they continue to score substantially below those students in LA and Business.

The changes obtained on the personal orientations are smaller than those obtained on the scales for interpersonal orientations. In fact, sizeable increases are obtained only on the scale of withdrawn and over-controlled for students in all three schools.

It is difficult to interpret the significance of these changes, although the following implications would appear to be reasonable. As freshmen, students in Tech seemed to be somewhat uninvolved in interpersonal contacts. They were strongly oriented toward intellectual achievement and less responsive to their relationships with others. As seniors, the strong intellectual orientation continues, although their involvement in interpersonal relationships shows a significant increase. A similar but less striking increase in interpersonal involvement holds also for those in Liberal Arts and Business.

The increase in scores on the scale labelled withdrawn or over-controlled also requires some explanation. Taken literally, it might imply that the students had become more anxious and depressed. But a different explanation seems more reasonable. As freshmen, students face a fairly well-defined set of responsibilities: to be successful in college. As seniors, they are about to leave this rather well-defined environment, to take on new responsibilities, and perhaps to enter a world that is both unknown and more complex. In addition, seniors may well have learned that life is a more complex business than they had imagined as freshmen. Thus, students who must look ahead to the more complex responsibilities of adulthood may well give the appearance of greater uncertainty and concern for their futures.

There is one additional pair of questions that contains information about the personal outlooks of these students. In the senior questionnaire, the students were given a list of qualities which might apply to them. This is the same list that they had previously rated as either essential or not essential for success in their chosen careers (Table 5-19). In this pair of questions, students were first asked to circle three qualities that are most characteristic of them and secondly to circle three that were least characteristic. The results are summarized in Table 5-30.

What sorts of responses would one expect to these questions? We have suggested previously that students choose a career as if they were buying a suit of clothes: i.e., there must be a reasonable fit between the individual -- his motives and self-evaluation -- and the possible rewards and expected competences associated with the career environment. In these questions on most and least characteristic qualities, a student is in part revealing his own evaluation of certain strengths and weaknesses that he possesses. One would expect that there be some consistency between these self-evaluations and a student's expectations of what work will really be like.

To some extent, this prediction is borne out by the data. As an aid to interpretation, the rank ordering of these qualities has been determined and is summarized in Table 5-31, first for ratings on qualities essential for success and secondly for those qualities that are most and least characteristic. Rank order correlations between appropriate pairs of rankings have been computed (Table 5-32). As was predicted, there are substantial positive correlations between essential and most characteristic rank orders and negative correlations with least characteristic. For students in Business and Tech, the magnitude of the correlation is somewhat higher for the most characteristic ratings.

TABLE 5-30

Percentage Distribution of Senior Responses on Qualities Most and Least Characteristic of One

Quality	College					
	LA		Business		Tech	
	Most	Least	Most	Least	Most	Least
1. Ability to express myself	31.7	7.9	23.2	14.6	27.4	14.6
2. Special talent or aptitude	14.3	18.3	4.9	31.7	19.7	17.1
3. Luck	2.5	32.7	3.7	26.8	1.7	22.2
4. Leadership ability	15.4	10.4	20.7	1.2	8.6	10.3
5. Ability to get people to like you	28.7	3.5	26.8	9.8	20.5	3.4
6. Understanding people	48.5	2.5	37.8	4.9	23.1	6.0
7. Good grounding in basic theory	15.8	12.9	14.6	11.0	31.6	6.0
8. Practical knowledge of facts in my field	11.4	10.4	15.9	4.9	21.4	7.7
9. Ability to convince and persuade	10.4	7.5	15.9	6.1	10.3	6.0
10. Devotion to work	36.2	7.9	26.8	11.0	22.2	5.1
11. High degree of intelligence	22.8	13.4	13.4	23.2	24.0	12.0
12. Knowledge of special techniques	3.0	25.8	1.2	26.8	3.4	16.2
13. Willingness to work hard	47.5	8.4	50.0	11.0	60.6	2.6
14. Know influential people	2.0	55.0	3.7	46.4	0.0	60.6
15. Have social poise	8.4	22.8	11.0	13.4	1.7	29.1
16. Have capital or access to it	3.0	59.5	2.4	53.6	0.9	69.4
17. Administrative ability	17.4	14.4	35.4	1.2	23.1	6.8

TABLE 5-31

Rank Ordering of Seventeen Qualities Based on Ratings by Seniors

Quality	College								
	LA			Business			Tech		
	Essential	Most	Least	Essential	Most	Least	Essential	Most	Least
1. Ability to express myself	3	4	13.5	1	6	7	1	3	7
2. Special talent or aptitude	8	10	6	10.5	13	3	10	10	5
3. Luck	15	16	3	12.5	14.5	4.5	15	14.5	4
4. Leadership ability	13	9	10.5	8	7	16.5	9	12	9
5. Ability to get people to like you	10	5	16	7	4.5	12	11	9	16
6. Understanding people	5	1	17	5	2	14.5	7	5.5	13
7. Good grounding in basic theory	6	8	9	12.5	10	10	4	2	13
8. Practical knowledge of facts in my field	2	11	10.5	6	8.5	14.5	2	8	10
9. Ability to convince and persuade	7	12	15	2	8.5	13	8	11	13
10. Devotion to work	4	3	13.5	9	4.5	10	5	7	15
11. High degree of intelligence	9	6	8	16	11	6	13	4	8
12. Knowledge of special techniques	11	14.5	4	15	17	4.5	12	13	6
13. Willingness to work hard	1	2	12	3.5	1	10	3	1	17
14. Know influential people	16.5	17	2	14	14.5	2	16	17	2
15. Have social poise	14	13	5	10.5	12	8	14	14.4	3
16. Have capital or access to it	16.5	14.5	1	17	16	1	17	16	16
17. Administrative ability	12	7	7	3.5	3	16.5	6	5.5	11

On the other hand, if one examines the actual magnitudes of the percentages in Tables 5-19 and 5-30, one notes that without exception the percentages for a quality as essential exceed the percentages for the same quality as most characteristic. Apparently, it is relatively easy to view a quality as essential for success and much more hazardous to state that this quality is most characteristic of one. We have also selected for each school the two qualities for which the discrepancy in percentages is largest. For students in LA, the largest discrepancies are obtained for "practical knowledge of facts in my field" and "ability to express yourself"; for Business, they are "ability to express yourself" and "ability to persuade others"; and for Tech, they are "practical knowledge of facts in my field" and "ability to express yourself." The data suggest the following interpretations. Certain areas of competence or behavior are viewed by students as very important for success. Through school, students have an opportunity to evaluate certain abilities but not others. They feel reasonably confident about those abilities that they have been able to evaluate, such as their ability to work hard; they feel less confident about those abilities which are both important and as yet unevaluated. Furthermore, the differences among the schools are indicative of their differing orientations toward a career and the evaluation of competence. While all students are concerned about their ability to express themselves, the LA and Tech students are also concerned about their mastery of practical knowledge. This is consistent with their orientation to careers in which technical proficiency is important. The Business students, who placed greater value on leadership and administrative skill, are less concerned about the acquisition of practical knowledge and more concerned over the ability to persuade.

Finally, in Table 5-32 are rank order correlations for qualities essential

TABLE 5-32

Rank Order Correlations for Ratings on Qualities Essential for Success and Most and Least Characteristic

A. Correlations Among Schools

	Freshmen		Seniors	
	LA	Business	LA	Business
Business	0.65		0.62	
Tech	0.86	0.61	0.89	0.75

B. Essential Ratings vs. Most and Least Characteristic

	Most Characteristic	Least Characteristic
LA	0.72	-0.73
Business	0.80	-0.67
Tech	0.80	-0.67

for success among the three schools. One notes the highest agreement between Tech and LA students, both as freshmen and as seniors, and somewhat less agreement when students in either of these schools are compared with the students in Business.

85. Discriminant analyses.

In Chapter Three, we noted that incoming freshmen could be classified with considerable accuracy as students in either LA, Business, or Tech. Using data from the senior questionnaire, an additional pair of discriminant analyses have also been completed. In Table 5-33 are the coefficients for a pair of discriminant functions, using data from the eleven personal preference scales and the thirteen scales on what a student desires ideally of his chosen curriculum. In Table 5-34 are the results of the classification scheme when applied to seniors who persisted in programs within each of the three schools. As seniors, the students can be classified with considerable accuracy; 75% of those in LA, 86% of those in Business, and 72% of those in Tech were correctly classified by this procedure. The value of the generalized Mahalanobis D-Square obtained is 425.9, which is significant at $p < .001$ with 48 degrees of freedom.

Similar results for a second discriminant analysis, using the thirteen scales for a realistic evaluation of one's chosen curriculum plus the eleven personal preference scales, are summarized in Tables 5-35 and 5-36. Using these results, 81% of those in LA, 83% of those in Business, and 82% of those in Tech were correctly classified. The value of the generalized Mahalanobis D-Square statistic is 723, which is also significant at $p < .001$ with 48 degrees of freedom.

It is interesting to compare these results with those in Chapter Three. The accuracy of classification was quite high for freshmen as well as for seniors. Apparently, one can easily distinguish among the persisting students as freshmen and the accuracy of classification does not particularly increase when one uses data for seniors instead of freshmen.

TABLE 5-33

Discriminant Function Coefficients Using Data on Eleven Scales of Personal Preferences and Thirteen on Ideal Evaluations of the Curriculum

Variable	Function Coefficients	
	I	II
Realistic	1.30	1.26
Intellectual	1.31	1.43
Social Responsibility	1.32	1.42
Conventional	1.27	1.36
Enterprising	1.50	1.19
Artistic	0.93	1.11
Aggressive	0.32	0.28
Conscientious	0.81	0.66
Masculine	0.55	0.83
Status	1.38	0.71
Withdrawn and Over-Controlled	2.09	1.83
Theory vs. Practice	0.91	0.66
Broad vs. Direct Relevance	0.70	0.72
Freedom of Choice	2.61	2.67
Emphasis on Citizenship	6.18	6.05
Thinking vs. Facts and Techniques	2.54	2.46
Difficult vs. Easy	0.95	1.58
Emphasis on Ability to Express	1.34	1.58
Emphasis on Integration	1.30	1.54
Emphasis on Understanding People	-0.69	-0.74
Emphasis on Management	1.67	1.74
Technical vs. Humanities	2.09	2.02
Emphasis on New Developments	2.00	2.01
Opportunity to Specialize	3.92	4.17
Constant	-62.81	-62.11

TABLE 5-34

Classification of Seniors Among LA, Business, and Tech Using Functions from Table 5-33

Actual Group	Predicted Group			
	LA	Business	Tech	Total
LA	101	21	13	135
Business	4	70	7	81
Tech	9	21	76	106

	Group Means on Discriminant Functions	
	I	II
LA	62.80	60.90
Business	60.19	62.10
Tech	55.02	55.29

TABLE 5-35

Discriminant Function Coefficients Using Data on Eleven Scales of Personal Preferences and Thirteen on Realistic Expectations of the Curriculum

Variable	Function Coefficients	
	I	II
Realistic	1.43	1.84
Intellectual	1.72	2.11
Social Responsibility	0.63	0.97
Conventional	1.77	2.05
Enterprising	0.02	-0.15
Artistic	0.71	0.84
Aggressive	0.86	0.80
Conscientious	0.70	0.53
Masculine	0.69	0.88
Status	1.55	0.82
Withdrawn and Over-Controlled	1.97	1.27
Theory vs. Practice	0.65	0.63
Broad vs. Direct Relevance	0.57	0.59
Freedom of Choice	2.71	3.04
Emphasis on Citizenship	6.35	6.23
Thinking vs. Facts and Techniques	3.43	3.21
Difficult vs. Easy	0.77	1.36
Emphasis on Ability to Express	0.92	1.31
Emphasis on Integration	1.23	1.40
Emphasis on Understanding People	-1.11	-1.22
Emphasis on Management	1.38	1.48
Technical vs. Humanities	2.70	2.42
Emphasis on New Developments	2.40	2.44
Opportunity to Specialize	4.98	5.01
Constant	-65.79	-66.32

TABLE 5-36

Classification of Seniors Among LA, Business, and Tech Using Functions from Table 5-35

Actual Group	Predicted Group			
	LA	Business	Tech	Total
LA	109	15	11	135
Business	8	67	6	81
Tech	5	14	87	106

	Group Means on Discriminant Functions	
	I	II
LA	65.79	62.60
Business	63.13	66.32
Tech	55.97	55.68

CHAPTER SIX

ANALYSIS OF CHANGE: TRANSFER STUDENTS

The transfer students included in this study all began their college careers in the Technological Institute. One year later, they were pursuing a new program of study in either Liberal Arts or Business. Three years later, at the time of the administration of the senior questionnaire, we have an opportunity to evaluate what has happened to them, some of the consequences of their decision to transfer, and some ways in which they have changed as a result of their college careers.

§1. The fate of transfer students.

There is one very important question that can be raised of these students: how well do they fare after they transfer? Are they successful in completing a program of studies and, if they do graduate, is it actually in the school to which they transfer? In order to answer these questions, the college records for each student were examined in the spring and summer of 1966. In Table 6-1 is a summary of the data obtained. When the records were examined, there were a few students who had not yet graduated but who were in good standing and scheduled to graduate within a year. These students have been included in the category of graduated or scheduled to graduate. As a part of this follow-up study, we have also examined the records for all students who transferred from Tech to LA or Business after the beginning of their sophomore year. This group is designated as Post-Freshmen Transfers and their relative success in completing a program is not unlike that of the Freshmen Transfers. The records of some students indicate that they have transferred a second or a third time (to Journalism, Speech, Education, etc.) and either have graduated or are scheduled to graduate. These students are included in a third category.

Although the numbers of students in each category are small, the data

TABLE 6-1

Academic Outcomes for Transfer Students

Outcome	Transfer to LA		Transfer to Business	
	Freshmen (n=40)	Post-Freshmen (n=29)	Freshmen (n=23)	Post-Freshmen (n=25)
Graduates or scheduled to graduate in School to which he first transfers	37.5	65.5	69.6	84.0
Graduates in some other school in the University	12.5	3.5	13.1	0.0
Excluded or resigns	50.0	31.0	17.3	16.0

indicate the following. First of all, students who transfer to Business are more likely to be successful than are those who transfer to LA (77.0% vs. 49.1%), but what is more important is that 68.5% of all transfer students are either successful in completing some program of studies or are making satisfactory progress in their programs.

§2. Long-range values and aspirations.

Having determined that the majority of transfer students are actually successful in pursuing a new program of studies, we can turn to an evaluation of the changes taking place in these students. Note that, for the remainder of this chapter, we shall be considering only those transfer students who remain in the college to which they initially transfer.

When these students were asked about their expected standard of living, relative to that of their parents, those who transfer to LA show a decrease in the category who expect their standard of living to be higher (Tables 6-2 and 4-6). However, students transferring to Business show no particular change in their expectations. In addition, there are interesting changes in these students' expected incomes ten years after graduation. These data are summarized in Table 6-3. For each group, the median expected income was computed. Transfers to LA show very little change, with the median expected income of seniors being $13,541 vs. $13,978 for freshmen. Those who transfer to Business show somewhat of an increase ($14,061 for seniors and $12,082 for freshmen). Interquartile ranges were computed for these data and for the comparable freshmen data in Table 4-7. For both groups, there is an increase when seniors are compared to freshmen. For those who transfer to LA, the freshman interquartile range was $6,930 and for seniors is $10,110; in Business the comparable ranges are $5,000 for freshmen and $7,235 for seniors. Note, also, that the data for freshmen were obtained when these students were

TABLE 6-2

Percent Distribution of Transfer Seniors' Expected Standard of Living Relative to That of Family

Expected Standard	Transfer to LA	Transfer to Business
Higher	36.5	52.6
Same	63.5	47.4
Lower	0.0	0.0

TABLE 6-3

Percent Distribution of Transfer Seniors' Expected Income Ten Years After Graduation

Expected Income	Transfer to LA	Transfer to Business
Less than $7,499	0.0	0.0
$7,500 - 9,999	18.2	15.8
$10,000-12,499	24.3	21.1
$12,500-14,999	18.2	21.1
$15,000-19,999	12.1	26.3
Over $20,000	27.2	15.8

still enrolled in Tech and before their transfer to LA and Business.

What significance is to be attached to these data on expected income? To anticipate data to be introduced on changes in career choice, we will advance the following interpretation. By leaving Tech, those who transfer to LA have a wider range of career choices open to them than was formally the case. Some of them choose careers through which rather high incomes are possible and, as seniors, 27.2% expect incomes in excess of $20,000. As freshmen, only 16.4% had expected such an income. However, some students choose careers in fields like teaching, in which earnings may well be less than what is likely for an engineer. In short, seniors show an increase in expectations for very low and very high incomes. The median remains relatively stable, but the interquartile range is increased,

For those who transfer to Business, there is a somewhat different shift in expectations. As freshmen, 24.2% expected incomes of $10,000 or less. As seniors, this proportion decreases to 15.8%. Thus, by transferring to Business, there is a rather uniform increase in the expectations of a substantial but not necessarily high income.

Little additional information is obtained from the data on perceived social class (Table 6-4) or on father's present occupation (Table 6-5). There is little change in the distributions obtained for seniors as compared to freshmen. The data tend to confirm the observation that the transfers to LA include a moderate fraction from working class backgrounds. Those who transfer to Business are more uniformly from middle class backgrounds whose parents are employed in executive or administrative positions.

Responses of these students to the choice among being independent, successful, and well-liked are contained in Table 6-6. When compared to the freshmen transfers (Table 4-8), there are some interesting changes. Among

TABLE 6-4

Percent Distribution of Transfer Seniors' Self-Perception of Socio-Economic Class

Social Class	Transfers to LA	Transfers to Business
Upper	12.1	10.5
Middle	69.8	84.1
Working	18.2	5.4

TABLE 6-5

Percent Distribution of Father's Occupation for Transfer Seniors at Present

Occupation	Transfers to LA	Transfers to Business
Agriculture	9.1	0.0
Skilled and semi-skilled	6.1	21.0
Clerical and Sales	21.2	0.0
Business	6.1	5.3
Professional	21.2	5.3
Executive and Administrative	9.1	36.8
Engineering and Science	12.2	5.3
Deceased	12.2	10.5
Other	2.8	15.8

those who transfer to LA, a significant fraction (41.9%) had indicated that they wanted above all to be independent. This proportion remains about constant. There is a marked increase in those who want to be successful (27.4% to 45.6%), primarily as a result of a decrease in those wanting to be well-liked. Of the transfers to Business, 55.2% wanted to be successful as freshmen. This percent decreases to 26.3 for the seniors. There is a marked increase in those who want to be independent (17.2% vs. 52.6%).

Along similar lines, the students were asked about the importance of getting ahead in life (Table 6-7). For both transfer groups, there is a decrease in the number who select the response of very important, although most students continue to believe that it is at least fairly important.

When asked about the most valued activities of life as freshmen (Table 4-9), both transfer groups had indicated a rather low involvement in their careers for only 27.3% of those transferring to LA and 26.6% of those to Business give their first choices to their careers. This may well reflect their rather limited initial committment to engineering. As seniors, the LA transfers show considerably greater involvement in their new careers. The fraction choosing careers as their first choice was increased to 42.5% (Table 6-8). The Business transfers show no such increase: they continue to be only moderately involved with their careers and give many more first choices to family activities. The importance of recreational activities has declined somewhat for both groups. Under religious activities, the LA transfers show a rather marked decline in involvement, although the Business transfers are perhaps the only group in the study with some first choices (10.5%) under this heading.

Responses of these students to questions about the ideal job and what they expect realistically are summarized in Table 6-9. In Table 6-10, some

TABLE 6-6

Percent Distribution of Transfer Seniors' Aspirations

Aspiration	Transfers to LA	Transfers to Business
Independent	42.5	52.6
Successful	45.6	26.3
Well-Liked	12.1	21.1

TABLE 6-7

Percent Distribution for Transfer Seniors on Importance of Getting Ahead in Life

Value	Transfers to LA	Transfers to Business
Very important	39.4	52.7
Fairly important	45.6	31.5
Not very important	12.1	15.8
Very unimportant	3.0	0.0

TABLE 6-8

Percent Distribution of Transfer Seniors' Views of the Most Valued Activities in Life

	Activity											
	Career				Family				Recreation			
	1st	2nd	3rd	None	1st	2nd	3rd	None	1st	2nd	3rd	None
Transfer to LA	42.5	45.5	9.0	3.0	51.5	39.5	6.1	3.0	0.0	12.1	51.5	36.4
Transfer to Business	21.1	52.7	21.1	5.2	58.0	36.8	0.0	5.2	5.2	0.0	52.6	42.1

	Activity											
	Religion				Community Affairs				Nat. & Internat. Affairs			
	1st	2nd	3rd	None	1st	2nd	3rd	None	1st	2nd	3rd	None
Transfer to LA	0.0	0.0	0.0	100.0	0.0	0.0	21.2	78.8	0.0	0.0	3.0	97.0
Transfer to Business	10.5	0.0	5.2	84.3	0.0	10.5	15.8	73.7	0.0	0.0	5.2	94.8

comparisons have been made to data obtained as freshmen (Table 4-12) in order to clarify the changes in outlook that have taken place. Since the freshmen data were obtained while the students were still in Tech and oriented towards careers in engineering, these data permit us to evaluate certain consequences to these changes in career plans. The column ΔI summarizes shifts in ideal views, with a positive sign indicating that more students as freshmen felt that this characteristic was highly important. Looking at those who transfer to LA, there are two important respects in which the seniors are less demanding of an ideal job than were the freshmen: provide a stable, secure future and chance for adventure. These two characteristics have become less important and may perhaps be somewhat taken for granted. Other shifts are either negligible or in the negative direction. For example, more seniors than freshmen feel that a chance to work with people is highly important. In the column labelled ΔR, negative differences indicate that more seniors than freshmen expect the characteristic as highly realistic. For the most part, seniors are more optimistic: they are more likely than the freshmen to expect these characteristics as highly realistic. This increase is particularly true under a chance to use my abilities, give me status and prestige, a chance to exercise leadership, and a chance to work with people.

Finally, in the column labelled $|\Delta_F| - |\Delta_S|$, an attempt has been made to consider whether discrepancies between ideal and realistic have decreased as a result of this change in career plans. Note, first of all, that ideal percentages for the LA transfers as freshmen were always larger than the realistic percentages. Roughly speaking, students did not expect their ideal hopes to be matched by reality. For seniors, there are two characteristics for which the realistic percentage exceeds the ideal: give me status and prestige, and provide a stable, secure future. Thus, for these two characteristics, seniors

TABLE 6-9

Percent Distribution of Transfer Senior Views of the Ideal Job And of Their Realistic Expectations

Job Characteristic	Transfer to LA			Transfer to Business		
	I	R	I - R	I	R	I - R
Chance to use my abilities	91.0	66.7	+24.3	58.0	36.8	+21.2
Chance to earn a good deal of money	48.5	36.4	+12.1	47.4	26.3	+21.1
Permit me to be original and creative	75.9	24.2	+51.7	52.7	21.1	+31.6
Give me status and prestige	24.2	34.4	-10.2	21.0	10.5	+10.5
Chance to work with people	54.6	45.5	+ 9.1	58.0	42.1	+15.9
Provide a stable, secure future	30.3	36.4	- 6.1	63.2	36.8	+26.4
Leave me free of supervision	66.7	18.2	+48.5	47.4	15.8	+31.6
Chance to exercise leadership	57.6	27.3	+30.3	63.2	21.1	+42.1
Chance for adventure	27.3	15.2	+12.1	42.1	5.2	+36.9
Opportunity to help others	51.6	27.3	+24.3	31.6	15.8	+15.8

TABLE 6-10

Comparison* of Transfer Students' Views of Ideal Job and Realistic Expectations as Freshmen and Seniors

Job Characteristic	Transfer to LA			Transfer to Business		
	ΔI	ΔR	$\lvert\Delta_F\rvert - \lvert\Delta_S\rvert$	ΔI	ΔR	$\lvert\Delta_F\rvert - \lvert\Delta_S\rvert$
Chance to use my abilities	0.0	-12.2	+12.2	+38.5	+19.7	+18.8
Permit me to be original and creative	- 1.4	+ 6.7	- 8.1	- 6.1	-11.1	+ 5.0
Chance to earn a good deal of money	- 6.7	- 7.2	+ 0.5	+12.6	- 2.9	+15.5
Give me status and prestige	- 2.4	-25.3	+ 2.5	- 7.6	+ 9.5	- 3.9
Provide a stable, secure future	+35.2	+ 7.2	+15.8	+26.8	+19.8	+ 7.0
Leave me free of supervision	- 6.7	- 9.1	+ 2.4	- 7.4	-12.5	+ 5.1
Chance to exercise leadership	- 6.7	-16.4	+ 9.7	- 3.2	- 1.1	- 2.1
Chance for adventure	+18.2	- 4.3	+22.5	-12.1	+ 4.8	-19.0
Chance to work with people	-14.6	-24.3	+ 5.4	-18.0	-12.1	- 5.9
Opportunity to help others	+ 2.9	+ 1.8	+ 1.1	+18.4	+10.9	+ 7.5

*Computations based on freshmen scores minus senior scores transferring to LA expect to be much more satisfied than they did as freshmen. In most other respects, these seniors are more optimistic than they were as freshmen. However, although they expect less of a discrepancy on a chance to use my abilities (+12.2), they expect more of a discrepancy on permit me to be original and creative (-8.1). On the whole, those who transfer to LA appear to be more sanguine about their future job experiences than they were as freshmen.

What corresponding improvement has there been for those who transfer to Business? The pattern of responses for these students is much more difficult to interpret. On a chance to use my abilities, chance to earn a good deal of money, provide a stable, secure future, and opportunity to help others, the percent of seniors rating these as highly important decreases. The only substantial increases on ideal job ratings are for a chance for adventure and a chance to work with people. On the other hand, their realistic expectations also show some decreases, as on a chance to use my abilities, status and prestige, provide a stable, secure future, and opportunity to help others. The net effect is that, on most job characteristics, the discrepancy between ideal and realistic ratings is less for seniors than it was for freshmen. The one major exception is on a chance for adventure.

§3. Career expectations and evaluations.

In this section, we will review some data on the actual career plans of these seniors and on their evaluation of these plans. In Table 6-11 are summaries of responses on career plans ideally upon graduation, realistically upon graduation, and at the peak of your career. As freshmen, those who transfer to LA were primarily planning careers in engineering, with some hoping for a position in applied research or in management ideally upon graduation. But at the peak of one's career, 54.5% expected to be employed in

TABLE 6-11

Percent Distribution for Career Aspirations of Transfer Seniors

Position	Transfer to LA		
	Ideally upon graduation	Realistically upon graduation	At peak of career
Management	24.2	9.1	36.5
Sales	6.1	12.1	0.0
Teaching	18.2	18.2	18.2
New Product Development	6.1	6.1	0.0
Basic Research	3.0	3.0	0.0
Physician or dentist	9.1	9.1	9.1
Lawyer	15.2	15.2	18.2
Armed Services	9.1	12.1	6.1
Undecided	6.0	9.1	9.1
Other	3.0	6.0	11.9
	Transfer to Business		
Management	47.3	36.8	63.1
Sales	5.3	10.5	0.0
Applied Research	0.0	10.5	0.0
Accounting or Finance	15.8	15.8	0.0
Doctor	5.3	5.3	5.3
Lawyer	5.3	5.3	5.3
Armed Services	10.5	15.8	10.5
Undecided	10.5	0.0	10.5
Other	0.0	0.0	5.2

management. As seniors, the involvement in engineering and in applied research has almost completely disappeared. A significant number of students still expect careers that will lead into management at the peak of their careers (36.5%). Two professions, previously almost ignored, now receive a substantial number of choices: teaching and law. For those who transfer to Business, there is also this necessary abandonment of a career in engineering. However, both as seniors and as freshmen, this group was highly management oriented, as shown by the percent expecting such a position at the peak of their career (66.7% as freshmen and 63.1% as seniors). It is interesting to note that ideally upon graduation these students also intend to enter some of the more specialized positions in management, particularly accounting and finance.

In Table 6-12 are responses to a question about feelings toward their chosen career. Transfer students, in general, seem only moderately satisfied with their career plans. Of those who transfer to LA, there is some increase in the percent regarding it as the only one really satisfying but responses in this category from the transfers to Business continue to be low.

Students were also asked when they had first considered entering this program of studies. Very few in either group give any indication that they had considered this program either before or during high school. Since these students had transferred during their freshman year, one would expect that first considerations would have been given at least by the freshman year. This is not the case, for 72.8% of those transferring to LA and 89.4% of the transfers to Business claim that first consideration took place after the freshman year. Note the contrast with those who persist in LA and Business (Table 5-13), for only 47.5% of the LA persistors and 47.6% of the Business persistors claim that first consideration was delayed until after the freshman year.

TABLE 6-12

Percentage Distribution of Transfer Seniors' Feelings About Their Chosen Field

Feelings	Transfer to LA	Transfer to Business
Only one really satisfying	18.2	5.3
One of several	63.7	73.7
Not the most satisfying	15.1	21.0
Chosen without considering whether others might be more satisfying	3.0	0.0

TABLE 6-13

Percent Distribution for Transfer Seniors' First Consideration of Entering This Program

Time of first consideration	Transfer to LA	Transfer to Business
Before high school	3.0	5.3
During high school	12.1	0.0
During freshman year	12.1	5.3
After freshman year	72.8	89.4

TABLE 6-14

Curriculum Choices* as Seniors
for Those Transferring to LA

Transfer to LA		Transfer to Business
Social Science	tied	Accounting
Political Science		Marketing
Humanities		Pre-Law
Mathematics		Finance
Medicine		LA Minor
Physics	tied	
Journalism		
Law		
Marketing		
Astronomy		
Economics		
Education		

*Decreasing order of choice

How are we to interpret these somewhat surprising results? First, let us add some data on the curricula in which these students are actually enrolled and what other choices had been considered. From Table 6-14, we note that the actual curricula chosen by those transfers to LA are far removed from engineering, for the social sciences, political science, humanities, and mathematics are the four with highest enrollment. In fact, choices in the physical sciences are low, although not non-existent. Those who transfer to Business have chosen primarily one of the specialized fields in Business. By far the largest enrollment is in accounting (approximately 50%) and relatively few are enrolled in the LA minor program.

When asked about fields most likely to have been considered before making the present choice, most respondents in both groups talk about some field in engineering. The absence of references to the programs in which they are presently enrolled is quite surprising. When asked about programs in which they were previously enrolled, these students mention primarily other fields in engineering, which is completely consistent with their initial enrollment in Tech and their subsequent transfer.

From all these data, certain conclusions about how these students have made their choices of a career seem warranted.

On the whole, these students had scarcely given serious thought to any field except engineering when they made their initial choice. Yet, they apparently had misgivings about engineering from the very beginning. Their first year experiences were discouraging and they began to consider some alternative. However, their reasons for leaving Tech for LA or Business appear to have been primarily negative ones. They left in order to avoid an unpleasant situation rather than to enter one which offered clear-cut positive inducements. This latter conclusion seems warranted by the fact that the students apparently did not make a positive committment to a new career until

TABLE 6-15

Fields Most Likely* To Have Been Considered Before Making Present Choice

Transfer to LA		Transfer to Business	
Engineering (unspecified)		Engineering (unspecified)	
Mechanical Engineering		Industrial Engineering	
Chemical Engineering	tied	Civil Engineering	tied
Medicine		Mechanical Engineering	
Civil Engineering	tied	Law	
Science		Education	
Liberal Arts (unspecified)			
Law			
Education			

*Decreasing order of preference

TABLE 6-16

Most Likely Curricula in Which Students Were Previously Enrolled

Transfer to LA		Transfer to Business	
Engineering (unspecified)		Engineering (unspecified)	
Mechanical Engineering		Electrical Engineering	
Chemical Engineering	tied	Industrial Engineering	tied
Science		Mechanical Engineering	
Civil Engineering	tied	Chemical Engineering	tied
Medicine		Civil Engineering	
Industrial Engineering		Education	

sometime after their transfer had been completed. By transferring, a student reached a safer haven. He could then review a new set of alternatives and eventually make a new committment.

It is interesting to note that the new career plans of those transferring to LA represent a rather major change from what they had originally planned. It seems justified to say that these students change their objectives in rather significant ways. On the other hand, transferring to Business seems to represent more of a change in means rather than ends. Specifically, these students all along were oriented towards careers in management and this objective does not change. The choice of a career and a program of study appear to be means to achieve that end. Originally, they had chosen engineering as a path into management; when this choice comes into question, they are willing to replace it with an alternative that will also serve the purpose. Training in some specialized program in Business is also satisfactory, although it may not have been the most desirable possibility.

Elsewhere students were asked about the qualities essential for success in their chosen field (Table 6-17). We noted in Chapter Five that the Spearman rank correlation coefficient of freshmen with senior data was quite high when computed for each of the schools. Values obtained were 0.95 for LA, 0.87 for Business, and 0.92 for Tech. These particular coefficients were obtained for students who began in a particular school and who persisted in that choice. Under those circumstances, one would expect considerable stability to the views of students of qualities essential for success in one's chosen field. Would one expect the same stability for students who transfer from one school to another? Undoubtedly one would predict some change since the data for freshmen are based upon an intended career in engineering while the data as seniors are based upon a new career orientation.

For the seniors who have transferred, the rank ordering of these qualities

TABLE 6-17

Percentage Distribution for Transfer Seniors on Qualities Essential For Success in One's Chosen Field

Quality	Transfer to LA	Transfer to Business
1. Ability to express myself	85.0	79.0
2. Special talent or aptitude	57.6	36.8
3. Luck	21.2	15.8
4. Leadership ability	30.3	63.1
5. Ability to get people to like you	57.6	68.5
6. Understanding people	69.8	79.0
7. Good grounding in basic theory	60.6	42.0
8. Practical knowledge of facts in my field	63.7	79.0
9. Ability to convince and persuade others	48.6	47.3
10. Devotion to work	69.6	36.8
11. High degree of intelligence	45.6	21.0
12. Knowledge of special techniques	27.3	47.3
13. Willingness to work hard	75.9	94.7
14. Know influential people	18.2	21.0
15. Have social poise	33.4	31.5
16. Have capital or access to it	9.1	31.5
17. Administrative ability	48.6	68.5

TABLE 6-18

Rank Ordering on Qualities Essential for Success of Transfer Students

Quality	Transfer to LA		Transfer to Business	
	Freshman	Senior	Freshman	Senior
1. Ability to express myself	2	1	3	3
2. Special talent or aptitude	9	7.5	8	11.5
3. Luck	16	15	17	17
4. Leadership ability	8	13	7	7
5. Ability to get people to like you	11.5	7.5	8	5.5
6. Understanding people	6.5	3	6	3
7. Good grounding in basic theory	4	6	4.5	9
8. Practical knowledge of facts in my field	1	5	1	3
9. Ability to convince and persuade others	11.5	9.5	12.5	8.5
10. Devotion to work	5	4	4.5	11.5
11. High degree of intelligence	13	11	12.5	15.5
12. Knowledge of special techniques	10	14	11	8.5
13. Willingness to work hard	3	2	2	1
14. Know influential people	17	16	16	15.5
15. Have social poise	14.5	12	14	13.5
16. Have capital or access to it	14.5	17	15	13.5
17. Administrative ability	6.5	9.5	8	5.5

is contained in Table 6-18. Comparable data for freshmen are in Table 4-15. When the Spearman rank correlations were computed for freshmen vs. seniors, the values obtained were 0.84 for LA transfers and 0.84 for Business transfers. The correlation obtained for the LA transfers is high but somewhat lower than that obtained for the persistors in LA; for the transfers to Business, the value obtained is approximately equal to that obtained for those who persist in Business.

Nevertheless, it is of interest to note what sorts of changes have taken place in their rating of these qualities. For those ratings that concern personal abilities (ratings 1, 2, 11), the LA transfers continue to believe that these qualities are important. For those ratings which concern acquired abilities (7, 8, 12), there is a rather marked decrease in the number of students who believe that these qualities are essential to success. However, on the basis of the ratings on the importance of devotion to work and effort (10, 13), these students apparently continue to believe that these are important qualities. One can infer that these students still believe that success depends on committment and effort, but they are less likely than they were as freshmen to value highly those abilities that are acquired through a formal program of studies.

For the five ratings which involve interpersonal skills (4, 5, 6, 9, 15, 17), there is a more complex pattern. Ratings 4 and 17 have to do with managerial skills and there is quite a decrease in the number who believe that these qualities are important. This finding is quite consistent with the fact that transferring to LA involves a decrease in the orientation toward a career in management. However, from the other four ratings (5, 6, 9, 15), it is apparent that these students continue to place considerable value on interpersonal skills and, indeed, to increase the evaluation of the importance of social poise.

There are also three qualities relating to favorable events in the environment (3, 14, 16). As seniors, those who transfer to LA are more likely to place reliance on luck or knowing influential people than they were as freshmen, but there is a small decrease in the percent choosing having capital or access to it as essential.

In similar fashion, there are a number of changes in the views held by those who transfer to Business. The percent selecting the three qualities that concern personal ability decreases rather markedly. For example, as freshmen 40.0% believed that a high degree of intelligence was essential for success; as seniors, the comparable figure has dropped to 21%. Again, these students place less importance on those abilities that are acquired through education, with one interesting exception: knowledge of special techniques. This finding may follow from the fact that many of the students are enrolled in specialized programs of study in the School of Business: Accounting, Marketing, Finance. Interestingly enough, although almost all of these students believe that hard work is essential (rating 13), there is a marked decline in those who believe that devotion to work will be important.

As one might expect, there is an increase in the number who believe that managerial skills are important (4, 11) and there are increases in the percent who rate as essential each of the qualities that involve interpersonal skill. Finally, more of these students seem to place some reliance on all three qualities (3, 14, 16) that concern favorable events in the environment.

§4. Educational evaluations.

As freshmen, almost all of these students stated that the goal of gaining professional skill had great influence on their decision to attend college (Table 4-10). As seniors, the importance of this factor has dropped considerably. Only 54.5% of those who transfer to LA and 58.0% of the Business transfers claim that it was of great importance (Table 6-19). Similarly, there

TABLE 6-19

Percent Distribution for Transfer Seniors on Factors Influencing the Decision to Go to College

	Factor											
	Gain Professional Skills			Intrinsic Interest in Learning in My Field			General Intellectual Growth			Avoid Low-Level Job		
	Influence			Influence			Influence			Influence		
	Great	Some	None	Great	Some	None	Great	Some	None	Great	Some	None
Transfer to LA	54.5	45.5	0.0	27.3	57.6	15.1	45.5	30.3	24.2	33.4	48.6	18.0
Transfer to Business	58.0	42.0	0.0	15.8	68.4	15.8	36.8	26.4	36.8	73.8	21.1	5.1

has been a very substantial drop in the numbers who claim that an intrinsic interest in learning in my field is of great importance. For the LA transfers, the percent drops from 60.5% to 27.3%, for the Business transfers from 42.8% to 15.8%. In addition, those transferring to LA show a decrease in the percent choosing to avoid a low-level job as of great influence, although this factor continues to be selected by 73.8% of the Business transfers as of great importance. There is only one factor that seems to be of increasing influence, general intellectual growth. There is an increase from 28.3% to 45.5% for LA transfers and from 10.7% to 36.8% for Business transfers in the fraction selecting this factor as of great importance.

Students were also asked to use a set of thirteen rating scales in order to describe what an ideal curriculum ought to be like and realistically what it was actually like. These data are summarized in Table 6-20. On the basis of data already introduced, one might make the following predictions. If we assume that transferring from Tech to LA is accompanied by a rather major change in career plans, then we would expect some rather substantial changes in what the LA transfers would want of an ideal curriculum. On the other hand, if we assume that transferring from Tech to Business does not involve a major change in career objectives, but rather selection of an alternative means for its achievement, then we would expect fewer changes in what the Business transfers would want of an ideal curriculum.

Shifts in ideal ratings (freshmen minus senior medians) have been computed and are listed in column ΔI of Table 6-21. In addition, the sum of the absolute magnitudes of these values have been computed as a rough index of the total change in ideal ratings. The value of this index is 8.19 for the LA transfers and 4.49 for the Business transfers. The data are at least consistent with the prediction that the LA transfers would show a greater change in their ideal ratings.

TABLE 6-20

Transfer Senior Views of Their Chosen Curriculum: Ideally & Realistically

Curriculum Characteristic	Transfer to LA		Transfer to Business	
	I	R	I	R
1. Theory vs. Practice	3.88	3.38	5.00	5.00
2. Broad vs. direct relevance	2.25	2.72	2.50	3.00
3. Freedom of choice Yes → No	1.50	1.95	2.25	5.00
4. Emphasis on citizenship No → Yes	5.28	4.88	5.00	3.50
5. Thinking vs. Facts and Techniques	1.71	3.38	2.60	4.75
6. Difficult vs. Easy	2.38	2.70	2.80	3.67
7. Emphasis on ability to express Yes → No	1.21	4.17	1.22	3.00
8. Emphasis on integration Yes → No	2.63	5.08	2.25	3.75
9. Emphasis on understanding people Yes → No	2.08	3.10	1.71	2.71
10. Emphasis on management Yes → No	3.50	5.58	1.00	2.50
11. Technical vs. Humanities	4.92	4.13	3.00	2.33
12. Emphasis on new developments Yes → No	2.25	2.85	2.20	3.00
13. Opportunity to specialize Yes → No	4.55	2.93	4.33	3.40

It is also of interest to review qualitatively how these ideal ratings have changed. For both groups, much of the change is concentrated in the five rating scales on the fundamental characteristics of the subject matter included in the program (ratings 1, 2, 5, 12, 13). The LA transfers as seniors place great value on theory, on a program of considerable breadth, on a program that emphasizes thinking and problem-solving, and on a program that does not require one to specialize unduly. Those transferring to Business agree only in part. Their interest in a program that emphasizes theory decreases, although there are increases in the desire for a broad program and one that does not require too much specialization.

There are also five ratings on the breadth and variety of subject matter to be included in the program (4, 7, 9, 10, 11). For both groups, there is little change in the first three ratings and conflicting changes in the last two. Freshmen want about as much emphasis on preparation for citizenship, on the ability to express, and on understanding people as do seniors. As one might expect, the LA transfers as seniors want less emphasis on management and more on a broad humanistic program than they did as freshmen, while the Business transfers as seniors exhibit changes in precisely the opposite directions. There are very few changes in the three ratings on the administration and organization of the program (3, 6, 8), although both groups as seniors would prefer a little more freedom of choice than they had desired as freshmen.

We can also make some predictions about the changes to be expected in the realistic evaluations of these students' programs of study. In general, one would assume that realistic evaluations, based primarily on information about one's environment, are quite open to change, more so than ideals, values, and purposes that have been internalized; i.e., it is easier to change one's opinion about what is than about what should be. In addition, by changing from one school to another, these students in essence have become part of a new environment. Therefore, we would expect greater changes in their realistic evaluations than in their ideal ratings. Secondly, on the assumption that programs in Business and Tech have more in common (both being professionally oriented) than do programs in LA and Tech, we would predict that those who transfer to LA would show greater changes in their realistic evaluations than those who transfer to Business. Data on changes in realistic evaluations are in column ΔR of Table 6-21. As before, we have computed the sum of the absolute value of these changes as an index of total change. The values obtained are 18.79 for the LA transfers and 11.79 for the Business transfers. Thus, the total change for LA transfers is indeed greater than for the Business transfers and, in both cases, total change in realistic evaluations exceeds the total change in ideal ratings.

Qualitatively, the LA transfers come to recognize that there is more emphasis on theory, on a broad program, on learning to think abstractly, on new developments, and on not specializing in their new programs than they had expected of the old. Moreover, on the five ratings that concern the breadth and scope of the material included in the program, there are sizeable changes for LA transfers where seniors are compared to freshmen. They believe that there is much more emphasis on preparation for citizenship, on understanding people, and on the humanities. As one would expect, they believe that there is much less emphasis on management skills in the new program than they had expected of their original program. However, they believe that there is even less emphasis on developing an ability to express oneself than they had originally anticipated. In addition, they indicate that their present programs offer much greater freedom of choice, are somewhat easier, and place much less emphasis on the integration of material than they had originally expected. In summary, these students believe that their programs in LA differ least from

TABLE 6-21

Comparison* of Seniors vs. Freshmen on Ideal Curricula and Realistic Evaluations

Curriculum Characteristic	Transfer to LA		Transfer to Business	
	ΔI	ΔR	ΔI	ΔR
1. Theory vs. Practice	+0.48	+0.99	-0.43	-1.44
2. Broad vs. direct relevance	+1.00	+1.73	+0.75	-0.22
3. Freedom of choice Yes → No	+0.47	+2.99	+0.42	+0.50
4. Emphasis on citizenship No → Yes	+0.14	-2.21	0.00	-0.30
5. Thinking vs. Facts and Techniques	+1.18	+0.44	+0.07	-1.58
6. Difficult vs. Easy	+0.15	-1.17	+0.31	-2.29
7. Emphasis on ability to express Yes → No	+0.29	-0.67	+0.58	+0.80
8. Emphasis on integration Yes → No	-0.25	-2.08	-0.03	-1.08
9. Emphasis on understanding people Yes → No	-0.03	+1.90	+0.20	+1.43
10. Emphasis on management Yes → No	-1.45	-1.83	+0.50	+0.79
11. Technical vs. Humanities	-1.13	-1.82	+0.50	+0.03
12. Emphasis on new developments Yes → No	+0.11	+0.53	+0.25	+0.21
13. Opportunity to specialize Yes → No	-1.51	-0.43	-0.45	-1.12

*Freshmen medians minus those for seniors the programs in Tech in the way in which subject matter is approached; in both schools, theory, breadth, and lack of specialization are characteristic. However, the programs differ most with regard to the range of material included and in the overall organization of the programs.

Those who transfer to Business see their present programs as being more practical, less broad, with more emphasis on facts and techniques, and with less emphasis on specialization than they had expected of their original programs. On the other hand, they believe that their new programs place greater emphasis on citizenship, on developing the ability to express, on understanding people, and on management than did their original programs. And they see the current programs as more technical than otherwise and little changed in this respect from the programs in Tech. Under organization of the program they believe that there has been only a minor increase in freedom of choice, a marked reduction in difficulty, and even less emphasis on integration of subject matter than they had originally expected. On the whole, it seems clear that the program consequences of transferring to Liberal Arts are rather different than the consequences of transferring to Business.

In Table 6-22 are some data that are pertinent to the following question: is there any significant decrease in the discrepancy between ideal and realistic ratings when the ratings for seniors are compared to those obtained in the freshman year? Column Δ_F contains the discrepancy scores for freshmen and Δ_S the corresponding discrepancy scores for seniors. The sum of the absolute values of these scores have been computed for students transferring to each school. For the LA transfers, the sum of the discrepancies for seniors is 15.33, as compared to 19.17 for freshmen. For the Business transfers, the corresponding sums are 19.31 and 15.95 for seniors and freshmen respectively. The total decrease is a modest one.

For the LA transfers, there is an increase in discrepancy for six of the

TABLE 6-22

Comparison of Seniors vs. Freshmen on Discrepancies
Between Ideal Curriculum and Realistic Expectations

Curriculum Characteristic	Transfer to LA		Transfer to Business	
	Δ_F	Δ_S	Δ_F	Δ_R
1. Theory vs. Practice	-0.01	+0.50	+1.01	0.00
2. Broad vs. direct relevance	-1.20	-0.47	+0.47	-0.50
3. Freedom of choice Yes → No	-2.97	-0.45	-2.83	-2.75
4. Emphasis on citizenship No → Yes	+2.75	+0.40	+2.80	+1.50
5. Thinking vs. Facts and Techniques	-0.93	-1.67	-0.50	-2.15
6. Difficult vs. Easy	+1.00	-0.32	+1.73	-0.87
7. Emphasis on ability to express Yes → No	-2.00	-2.96	-2.00	-1.78
8. Emphasis on integration Yes → No	-0.62	-2.45	-0.45	-1.50
9. Emphasis on understanding people Yes → No	-2.95	-1.02	-2.23	-1.00
10. Emphasis on management Yes → No	-1.70	-2.08	-1.79	-1.50
11. Technical vs. Humanities	+1.48	+0.79	+1.14	+0.67
12. Emphasis on new developments Yes → No	-1.02	-0.60	-0.76	-0.80
13. Opportunity to specialize Yes → No	+0.54	+1.62	+1.60	+0.93

thirteen scales. There is too much emphasis on theory, too little on learning to think abstractly, too little on the ability to express, too little emphasis on integration of material, too little emphasis on management, and too much emphasis on specialization. For the Business transfers, there is an increase in discrepancy for only two of the thirteen scales. There is too much emphasis on learning facts and techniques and too little emphasis on integration of material.

Finally, in Table 6-23 are responses to a series of questions in which students could evaluate their total experience at Northwestern. On each of these scales, medians can range from 0.5 to 7.5. Both groups of transfer students are moderately glad that they came to Northwestern, while the LA transfers are a little more dissatisfied with the administration of the university. Transfers to LA are somewhat more disappointed with their chosen field of study and with their actual program of studies. Both groups appear to be somewhat ambivalent toward their fellow students, as shown by the lukewarm responses to a question of how one feels towards the student body as a whole.

85. Personal preferences and values.

The remaining data in the questionnaire pertain to the personal preferences and values of these students. When asked about the importance of one's plans for the future being known clearly in advance, student responses indicate some decrease in perceived importance (Table 6-24). There is particularly an increase in the number who state that it is not very important. For LA transfers, while 16.4% of the freshmen claim that it is not very important, 48.6% of the students as seniors choose this category. For Business transfers, the comparable percentages are 6.9% for freshmen and 21.0% for seniors. When asked how important it is to know how well you are doing in comparison to classmates, there is a similar decline in importance (Table 6-25).

TABLE 6-23

Senior Responses of Transfers to Questions Evaluating Their Overall College Experience (Mean Values)

Question	Transfers to LA	Transfers to Business
1. Coming to Northwestern sorry -> glad	5.73	5.53
2. The administration does a good job -> poor job	4.94	4.16
3. Of chosen field of study sorry -> glad	6.12	6.63
4. The faculty of my department does poor job -> good job	6.30	6.21
5. Of my program of studies, I'm disappointed -> pleased	5.33	5.74
6. Of the student body, I'm proud -> disappointed	4.42	4.53

TABLE 6-24

Percent Distribution for Transfer Seniors of Importance of Plans for Future Being Clearly Known in Advance

Value	Transfer to LA	Transfer to Business
Very important	9.1	21.0
Fairly important	36.5	52.7
Not very important	48.6	21.0
Fairly unimportant	6.0	5.3

In Table 6-26 are data pertinent to the assessment of style of life characterizing students in each transfer group. The distribution of responses shows little change when seniors are compared to freshmen (Table 4-22), although for the LA transfers, there is somewhat of an increase in the percent who can be characterized as artist-dreamer.

A more extensive assessment of changes in personal preferences can be made using the data from Holland's Vocational Preference Inventory, administered to students both as freshmen (Table 4-23) and as seniors (Table 6-27). A comparison of the two sets of data is summarized in Table 6-28, which includes changes in median values when freshmen are compared to seniors.

We will consider first the students who transfer to LA. The changes on the four intellectual orientation scales are moderate. There is a decrease in the scale on practical orientation, a modest increase toward becoming more conventional, and a rather large increase in the direction of more artistic. The most significant changes take place on the scales that pertain to interpersonal orientations. Changes in medians indicate an increase in social responsibility, in being enterprising, in aggressiveness, and in status seeking. Under personal orientations, the changes are minor, with the only significant change being in the direction of more withdrawn and over-controlled.

There are also a number of changes in the median scores of the Business transfers as seniors. As freshmen they scored moderately high on the practical and realistic scale and continue to do so as seniors. The changes in values indicate that they become less intellectual, somewhat more artistic, and a good deal more conventional. On the four scales of interpersonal orientations, there are changes, all in the same direction as the changes previously noted for the LA transfers: higher on social responsibility, on enterprising, on aggression, and on status seeking. Under personal orientations, their scores undergo greater change than was true for the LA transfers.

TABLE 6-25

Importance for Transfer Seniors of Knowing How Well You Are Doing in Comparison to Classmates

Value	Transfer to LA	Transfer to Business
Very important	9.1	21.0
Fairly important	36.5	42.1
Not very important	39.5	31.6
Very unimportant	15.2	5.3

TABLE 6-26

Percent Distribution for Transfer Seniors on Four "Styles of Life"

Style	Transfer to LA	Transfer to Business
Man of Action	18.2	31.6
Social Reformer	3.0	10.5
Man of Science	9.1	5.3
Artist, dreamer	21.2	0.0
Mixed	48.5	52.6

TABLE 6-27

Personal Preferences and Values of Transfer Seniors

I. Intellectual Orientations	Transfer to LA	Transfer to Business
Practical and realistic	2.40	3.25
Intellectual	4.45	3.00
Artistic	3.50	1.50
Conventional	3.33	5.14
II. Interpersonal Orientations		
Socially responsible	3.67	2.33
Enterprising	2.88	3.63
Aggressive	4.22	5.00
Status Seeking	4.42	4.00
III. Personal Orientations		
Conscientious and sociable	3.60	5.00
Interest in masculine activities	3.57	3.57
Withdrawn and over-controlled	2.33	3.30

TABLE 6-28

Changes* in Personal Preferences and Values of Seniors as Compared to Freshmen

I. Intellectual Orientations	Transfer to LA	Transfer to Business
Practical and realistic	+0.46	+0.25
Intellectual	-0.01	+0.93
Artistic	-2.00	-0.75
Conventional	-0.33	-1.49
II. Interpersonal Orientations		
Socially responsible	-1.89	-0.69
Enterprising	-0.80	-0.42
Aggressive	-1.05	-2.30
Status Seeking	-0.78	-0.70
III. Personal Orientations		
Conscientious and sociable	-0.35	-2.07
Interest in masculine activities	+0.10	+0.49
Withdrawn and over-controlled	-1.14	-1.60

*Freshmen median scores minus medians for seniors

They score a good deal higher on conscientious and sociable and on the scale of withdrawn and over-controlled.

There is one final pair of questions that is pertinent to assessment of personal evaluations that these students make. They were asked to describe themselves using the same set of seventeen qualities that appear in Table 6-17 as essential for success. Each student selected three qualities that were most characteristic of him and three that were least characteristic (Table 6-29). A comparison was made of these most and least characteristic judgments with the data on qualities asserted for success by computing Spearman rank order correlation coefficients between the rank orders for essential vs. most characteristic and essential vs. least characteristic. For the LA transfers, the values obtained are 0.84 and -0.54, respectively; for the Business transfers, they are 0.79 and 0.67. These are moderately high correlations but there appears to be some discrepancy between what students believe is essential and their own evaluation of themselves. We have also selected for each school those two qualities for which the discrepancy in percentages is the largest when the data on essential for success and most characteristic of me are compared. For the transfers to LA, rating 1, the ability to express myself, has the highest discrepancy; ratings 8, practical knowledge of facts in my field, and 10, devotion to work, are tied for the second largest discrepancy. For the transfers to Business, the two largest are for ratings 1 and 8, ability to express myself and practical knowledge of facts in my field. It is somewhat surprising to find many of the LA transfers rating devotion to work as essential while few view it as a characteristic that they possess. On the other hand, the Business transfers claim that devotion to work is not one of their characteristics, but few of them believe that it is essential for success.

TABLE 6-29

Percent Distribution of Senior Transfers' Responses on Qualities Most and Least Characteristic of Me

Quality	Transfer to LA		Transfer to Business	
	Most	Least	Most	Least
1. Ability to express myself	33.3	15.2	21.0	26.2
2. Special talent or aptitude	15.2	12.1	15.8	15.8
3. Luck	6.6	24.2	5.2	26.2
4. Leadership ability	9.1	6.1	26.2	5.2
5. Ability to get people to like you	24.2	6.1	36.8	5.2
6. Understanding people	45.5	0.0	63.1	0.0
7. Good grounding in basic theory	24.2	15.2	10.5	10.5
8. Practical knowledge of facts in my field	15.2	12.1	21.0	0.0
9. Ability to convince and persuade others	15.2	9.1	10.5	10.5
10. Devotion to work	21.2	3.0	10.5	10.5
11. High degree of intelligence	30.0	9.1	10.5	21.0
12. Knowledge of special techniques	3.0	21.2	5.2	31.6
13. Willingness to work hard	36.5	12.1	57.9	5.2
14. Know influential people	0.0	63.7	0.0	57.9
15. Have social poise	0.0	30.0	15.8	26.3
16. Have capital or access to it	0.0	54.6	0.0	47.3
17. Administrative ability	21.2	6.1	31.6	10.5

TABLE 6-30

Rank Ordering on Qualities Essential for Success and Most or Least Characteristic of Me

Quality	Transfer to LA			Transfer to Business		
	Essential	Most	Least	Essential	Most	Least
1. Ability to express myself	1	3	6.5	3	6.5	5
2. Special talent or aptitude	7.5	10	9	11.5	8.5	8
3. Luck	15	13	4	17	14.5	5
4. Leadership ability	13	12	14	7	5	14
5. Ability to get people to like you	7.5	5.5	14	5.5	3	14
6. Understanding people	3	1	17	3	1	16.5
7. Good grounding in basic theory	6	5.5	6.5	9	11.5	10.5
8. Practical knowledge of facts in my field	5	10	9	3	6.5	16.5
9. Ability to convince and persuade others	9.5	10	11.5	8.5	11.5	10.5
10. Devotion to work	4	7.5	16	11.5	11.5	10.5
11. High degree of intelligence	11	4	11.5	15.5	11.5	7
12. Knowledge of special techniques	14	14	5	8.5	14.5	3
13. Willingness to work hard	2	2	9	1	2	14
14. Know influential people	16	16	1	15.5	16.5	1
15. Have social poise	12	16	3	13.5	8.5	5
16. Have capital or access to it	17	16	2	13.5	16.5	2
17. Administrative ability	9.5	7.5	14	5.5	4	10.5

§6. Fraternity membership among transfer students.

There is one side issue that has been explored in this study on the possible effects of fraternity membership on those students who transfer or who drop out. From records of these students, it was possible to determine whether or not they were a member of a fraternity. These data were obtained for the students who transferred during their freshman year, for those who transferred after the freshman year, for those dismissed, for those leaving voluntarily, and, as a control, for those who persisted in Tech. The results are summarized in Table 6-31. The following conclusions seem warranted. Fraternity membership is higher among those who transfer than among those who persist in Tech or who drop out, either through dismissal or voluntarily. Fraternity membership among the dropouts is about the same as among those who persist. There is an indication that fraternity membership is higher among those transferring to Business than among those transferring to LA; 61.4% of those who transfer to Business belong to fraternities as compared to 48.7% for those who transfer to LA.

§7. Comparisons with Liberal Arts and Business.

In chapter four, we made a series of comparisons between the two transfer groups and the main persistor populations in LA, Business, and Tech. In some important respects, these students as freshmen had much in common with their fellow students in Tech. They came from equally modest backgrounds and, to some extent, they shared similar views. On the other hand, it was clear that the transfer students differed from the Tech students, although their viewpoints were by no means identical with those students in the schools to which they were about to transfer. Three years later, we can again make similar comparisons in order to determine the extent to which the transfers to LA

TABLE 6-31

Fraternity Membership Among Selected Student Groups

Group	% Belonging to a Fraternity	n
Transfers to LA as freshman	39.2	46
Transfers to LA after freshman year	62.5	32
Transfers to Business as freshman	60.0	25
Transfers to Business after freshman year	62.5	24
Dismissed	37.5	96
Leaves voluntarily	31.4	51
Persists in Tech	31.0	271

have come to resemble the other LA students or the transfers to Business the other students in Business.

Aspirations. The students who transfer to LA are less likely to expect a higher standard of living as compared to their parents than are the LA persistors, and their expected income ten years after graduation is also lower ($13,541 vs. $14,759). Moreover, the interquartile range on expected income is larger for the transfer students than for the LA persistors ($10,110 vs. $8,215). A somewhat similar pattern holds when the Business transfers are compared to the Business persistors. The transfers expect a lower income ($14,061 vs. $14,780) and the interquartile range on income is considerably larger ($7,235 vs. $2,534). However, the percent of Business transfers expecting a higher standard of living is only slightly lower than for the Business persistors.

When views about aspirations are compared, there is little difference in the responses of the LA persistors and LA transfers. However, the responses from the Business transfers are rather different from those who begin and persist in Business. More transfer students choose to be independent and more persistors choose to be successful. When questioned on how important it is to get ahead in life, the responses of each transfer group resemble the responses of the comparable persisting group of students. Responses about the most valued activities in life are also similar.

When views about an ideal job and their realistic evaluations are compared, then one does note some interesting differences, particularly for the Business students and those who transfer to Business. Using the rankings of the characteristics of an ideal job, rank order correlations have been computed. The correlation between the rankings of the LA persistors and the LA transfers is 0.89 and between Business persistors and Business transfers is

0.66. The LA transfers are more likely to rate being original and creative as highly important than are the LA persistors. The LA transfers are more concerned about money, less about security, and more concerned about leadership than are the LA persistors. On the other hand, the transfers to Business compared to the Business persistors are less concerned about a chance to use their abilities or to be original or creative; they are less concerned about money or prestige, but more concerned about security; they are more likely to value a chance for adventure as highly important, but less likely to be concerned with freedom from supervision or a chance to exercise leadership; and they place a higher value on working with people and an opportunity to help others.

Rank order correlations have also been computed for the realistic ratings. They are 0.87 for LA transfers vs. LA persistors and 0.78 for Business transfers vs. Business persistors. When the LA transfers are compared to the LA persistors, the only marked differences are under the heading of interpersonal characteristics of a realistic position; those who transfer are less likely to expect a chance to work with people or an opportunity to help others. When the Business transfers are compared to the Business persistors, those who transfer are less likely to expect a chance to use their abilities but more likely to expect an opportunity to be creative. They are more pessimistic about the possibility of receiving rewards, in money or prestige, although there is little difference in their expectations about a secure future. Differences are small on all these ratings.

Career expectations. By comparing the data in Table 5-11 with that in 6-11, one can make an assessment of the career differences of the persistors and the transfers. There is considerable overlap in the career choices of the LA persistors and transfers, particularly under the headings of teaching and law. The major differences are that those who transfer are more likely to expect a career as a physician or a dentist. From the responses to the question about how satisfied a student feels with his chosen career, one notes that the transfers to LA are somewhat less satisfied.

There is even closer agreement between the career choices of the Business persistors and those who transfer to Business. The only difference is that a moderate number among the Business persistors but not among the Business transfers are planning a career in Law. From Tables 5-12 and 6-12, it is apparent that those who transfer to Business are somewhat less satisfied with the choices they have made than are the students who persist in Business.

It is also of interest to make a comparison of the actual curricula in which these students are enrolled. The LA transfers make rather similar choices to those made by the LA persistors (Tables 5-16 and 6-14), with the exception of the large number of LA persistors enrolled in a pre-medical program of study. On the other hand, the curriculum choices made by the Business transfers (Tables 5-17 and 6-14) show a great concentration in specialized programs of study (Accounting and Marketing). The Business persistors also engage in these specialized programs, but the one program most popular among them is the LA minor, as unspecialized a choice as one could make from within the School of Business.

Again, from the data on qualities essential for success, one notes that in many respects the LA persistors and transfers have rather similar outlooks, but there are greater differences when the Business persistors and the Business transfers are compared. For example, rank order correlations have been computed (Tables 5-19 and 6-17) and the correlation obtained for the LA transfers with the persistors is 0.93 but is only 0.78 for the Business transfers with the Business persistors. We will review first the comparison of LA persistors and transfers. With respect to personal abilities (ratings 1, 2, 11), those who transfer to LA place greater emphasis on the ability to express and special talent or aptitude, although the groups place about equal emphasis on intelligence. On the importance of devotion to work and hard work, the percent in each group rating these as essential is high and approximately equal. On the characteristics that pertain to acquired abilities (7, 8, 12), there is little difference on the percent rating a good grounding in basic theory as essential, but the LA persistors are more likely to rate practical knowledge and knowledge of special techniques as essential than are the LA transfers. On those interpersonal skills (ratings 4, 5, 6, 9, 15, 17), the only differences of any magnitude are that the LA transfers are more likely to select as essential the ability to get people to like you, having social poise, and administrative ability. On favorable events in the environment (ratings 3, 14, 16), there is little difference in the ratings of these two groups. It seems plausible to assume that the observed differences in ratings may follow from the more pronounced managerial orientation of the transfer students vs. the more pronounced professional (medical) orientation of those who persist.

Comparing the Business persistors and transfers, those who persist place slightly greater emphasis on personal abilities (ratings 1, 2, 11) than do those who transfer to Business, although the differences are small. On the importance of devotion to work and hard work, there are differences between the two groups. Those who transfer are less likely to rate devotion to work as essential for success, but more likely to believe that hard work is essential. On those characteristics that pertain to acquired abilities (7, 8, 12), those who transfer are somewhat more likely to rate each of these qualities as essential than are those who persist in Business. On those interpersonal skills (4, 5, 6, 9, 15, 17), both groups place high and approximately equal emphasis on leadership ability, getting people to like you, and understanding people.

However, those who transfer to Business are less likely to rate ability to persuade, having social poise, or administrative ability as essential than are those who persist in Business. Finally, on favorable events in the environment (3, 14, 16), those who transfer to Business are less likely to rate luck or knowing influential people as essential, although they are more likely to place importance on having capital or access to it.

Curriculum evaluations. From the data in Tables 5-20 and 6-19, one can compare the reasons given for going to college by those who transfer with the reasons of those who persist in a given school. Those who transfer into LA differ only in minor ways from those who persist in LA. Those who transfer are more likely to place at least some emphasis on gaining professional skills than are those who persist: for the former group 100% state that this factor is of great or some influence while the comparable percentage for the latter group is 86.7%. Those who transfer to LA are less likely to state that avoiding a low-level job is of great importance than are those who persist (33.4% vs. 42.5%).

Those who transfer to Business also differ somewhat from those who persist in Business. Of the Business transfers, 58.0% state that to gain professional skills is of great importance, while only 44.5% of those who persist give a similar response. To avoid a low-level job is apparently of greater importance for those who transfer into Business: 73.8% of the transfers indicate that this reason is of great influence vs. 56.8% for those who persist.

From the data in Tables 5-21 and 6-20, one can make comparisons of these students' views of their ideal curricula and what it was like realistically. With respect to the five ideal ratings on fundamental characteristics of the subject matter (1, 2, 5, 12, 13), the LA transfers and the LA persistors express similar views about an ideal curriculum. There are minor differences in that the transfer students express a stronger interest in a program that emphasizes the ability to think and a slightly weaker interest in a curriculum that emphasizes new developments. In the five ratings that refer to the breadth and variety to the subject matter (4, 7, 9, 10, 11), there are two respects in which these two groups express rather different views. Those who transfer to LA tend to be more interested in a program that prepares one for managerial responsibilities and that emphasizes technical preparation rather than the humanities. These differences very likely are a consequence of the stronger orientation of transfer students toward careers in management and the stronger orientation of those who persist for a career in some profession. The two groups express quite similar views about the organization and administration of the program (3, 6, 8).

Those who transfer to Business and those who persist in Business also express rather similar views about an ideal curriculum. Those who transfer to Business would prefer a curriculum that is relatively more practical rather than theoretical, that places greater emphasis on management, and is more completely limited to technical preparation. These differences confirm the observations noted before that those who transfer to Business have a somewhat narrower and more vocational orientation toward their studies than do those who persist in Business.

In addition, one can make some interesting comparisons of the realistic views expressed by these students of their chosen curricula. For students in a given school, we have compared those who transfer and those who persist on both ideal and realistic ratings and attempted to determine whether or not the average difference on ideal ratings exceeded the average of the differences on realistic ratings. This computation is based on the absolute differences between two groups on each pair of ratings. Using these absolute differences, the average difference on ideal ratings is 0.38 when the LA transfers are compared to the LA persistors but the average difference on realistic ratings is 0.47. Similarly, when comparing the Business transfers and persistors, the average difference on ideal ratings is 0.33 and on realistic ratings is 0.46. Thus, in general, students in the same school seem to differ somewhat more in their realistic assessments of what they have experienced than in their ideal requirements. What possible explanations are there for this particular finding? One explanation might be that two groups of students, enrolled in the same school, are enrolled in different curricula. In that case, their experiences would actually have been different. But, we have already noted that those who transfer to LA differ somewhat in their long-range career plans from the LA persistors but not particularly in their choices of a program of studies. Those who transfer to Business do choose somewhat different programs of study from those who persist in Business: those who transfer are more likely to be enrolled in one of the specialized areas of business while the Business persistors often choose the Liberal Arts minor for their program of study. Even so, it is not clear that these latter differences in curriculum choices offer a sufficient explanation for the obtained findings.

There is an alternative explanation that may be advanced. To a significant extent, realistic ratings are based upon interpretations of one's experiences and these interpretations will depend upon the frame of reference one uses in order to evaluate his experiences. Thus, students who transfer into a school and those who persist in that same school may well apply different frames of reference to the evaluation of their experiences with a curriculum. For example, the LA persistors view their curricula as having been quite theoretical (a median of 2.48) while the LA transfers evaluate the curricula as somewhat more practical in orientation (a median of 3.38). The LA persistors believe that their curricula placed little emphasis on management (6.41), was strongly oriented toward humanistic studies (5.48), and offered relatively little opportunity to specialize (4.79). However, the comparable ratings for the LA transfers indicate some emphasis on management (5.58), less emphasis on the humanities (4.13), and considerable opportunity to specialize (2.93). It would appear that these differences depend partially upon different frames of reference being applied to the interpretation of one's experiences and, indeed, different career choices may have a major influence on differences in frame of reference. Similarly, the Business persistors believe that their curricula placed moderate emphasis on learning to think (3.69), was rather difficult (2.89), and placed moderate emphasis on the ability to express oneself (3.75); but the Business transfers believe that their programs placed considerable emphasis on facts and techniques (4.75), was not too difficult (3.67), and placed considerable emphasis on the ability to express (3.00).

From these data, it is also possible to compute an estimate of the total extent to which ideal ratings differ from realistic evaluations. For each group of students, the sum of the absolute differences of ideal and realistic ratings has been computed for all thirteen scores. The total discrepancy score for those who transfer to LA is 15.33, while the discrepancy score for the LA persistors is 13.82; the total for the Business transfers is 15.95 vs. 13.90 for the Business persistors. Thus, the total discrepancy for those who transfer exceeds scarcely at all the total discrepancy for those who persist in the same school.

From the data in Tables 5-24 and 6-23, some comparisons can be made of the overall evaluation of their experiences made by each of these groups of students. When transfers are compared to persistors, the differences are minor. Those who transfer to LA are at least as pleased with their decision to come to Northwestern as are the LA persistors. Although the LA transfers are less pleased with the administration and their chosen field of study, they tend to be more satisfied with the faculty of their department than are the LA persistors.

Results when the Business transfers and persistors are compared reveal a rather different pattern of findings. The Business transfers are somewhat less pleased with their decision to come to Northwestern; they are slightly more satisfied with the administration, with their chosen field, with the faculty of their department, and with their program of studies than are the Business persistors. However, the Business transfers are somewhat more disappointed with the student body than are the Business persistors.

Personal preferences and values. A final set of comparisons can be made on the basis of the data on personal preferences and values. Those who transfer to LA place somewhat less emphasis on having their plans for the future being clearly known in advance and on knowing how well they are doing in comparison to their classmates than do the LA persistors. Those who transfer to Business place about equal emphasis on the importance of their plans being clearly known in advance but rather greater emphasis on a comparison with their classmates when compared with the Business persistors. On the four styles of life (Tables 5-27 and 6-26), the distribution of students among the LA transfers is quite similar to that obtained for the LA persistors. When the Business transfers and persistors are compared, there is one difference of some consequence. None of the Business transfers are categorized as artist, dreamer, although the Business persistors have some students who are found in this category.

From Tables 5-28 and 6-27, comparisons can be made using the data from Holland's Vocational Preference Inventory. In terms of intellectual orientations, those who transfer to LA score somewhat higher on the intellectual and conservative scales than do the LA persistors. Under both interpersonal and personal orientations, the pattern of responses of the transfer students is quite similar to that of the LA persistors, although the LA transfer students score somewhat higher on the enterprising scale.

The differences between the Business transfers and persistors are somewhat larger than were the differences between the two groups of LA students. The Business transfers appear to be more practical, less artistic, and more conventional than those who persist in Business. The Business transfers score lower on the scales of social responsibility and status seeking than do the Business persistors, although both groups obtain similar scores on the three personal orientation scales.

Which group changes the most over the three-year period covered by this study? Data that are pertinent to this question are summarized in Tables 5-29 and 6-28. In these tables are the differences between scores obtained as freshmen and as seniors for each of the student groups. One can estimate overall change in personal orientations by computing the sum of absolute differences for each group and interpreting this sum as an index of total change. The total for the LA transfers is 8.90 vs. 4.70 for the LA persistors; the total for the Business transfers is 11.69 vs. 4.46 for the Business persistors. Apparently, those who transfer show greater changes in their personal preferences than do those who persist in a given school. It is also of interest to note those scales in which the greatest changes are registered. The LA transfers show a consistent pattern of change in all four of the scales measuring interpersonal orientations towards being more socially responsible, more enterprising, more aggressive, and more status seeking. There is also a very substantial increase in the artistic scale. The Business transfers also reveal a similar pattern of change in interpersonal orientations, although the changes are not limited to these four scales. The Business transfers also become less intellectual, somewhat more artistic, more conventional, more conscientious, and more withdrawn.

Finally, from Tables 5-30 and 6-29, some comparisons can be made on responses to the questions about qualities that are most and least characteristic of a given student. Using the rank ordering of qualities in Tables 5-31 and 6-30, rank order correlations have been computed for LA transfers and persistors as well as Business transfers and persistors. Using the ranking of qualities most like me, the correlation obtained between the two LA groups is 0.92 and between the two Business groups is 0.86. Using the ranking of qualities least like me, the respective correlations are 0.78 and 0.84. On the whole, similar responses are obtained from those who transfer and those who persist in a given school.

§8. Discriminant analyses.

Using data from the senior questionnaire, two discriminant analyses have been carried out that are parallel to those introduced in Chapter Four. Specifically, this procedure has been used in order to classify students in the three groupings of transfer to LA, transfer to Business, and Tech persistors. Results for the first of these analyses using data from the eleven personal preference scales and the thirteen scales on one's ideal desires for a chosen curriculum are contained in Tables 6-32 and 6-33. Students are classified with an accuracy of 64% for those transferring to LA, 77% for those transferring to Business, and 76% for those who persist in Tech. The value of the generalized Mahalanobis D-Square obtained is 132, which is significant at $p < .001$, with 48 degrees of freedom.

Results from a second analysis, using the eleven personal preferences

TABLE 6-32

Discriminant Function Coefficients Using Data on Eleven Scales of Personal Preferences and Thirteen on Ideal Evaluations of the Curriculum

Variable	Function Coefficients	
	I	II
Realistic	1.63	1.40
Intellectual	2.18	2.10
Social Responsibility	1.09	1.21
Conventional	0.59	0.99
Enterprising	0.95	1.10
Artistic	0.71	1.02
Aggressive	0.02	-0.09
Conscientious	1.67	1.44
Masculine	0.26	0.76
Status	1.57	1.19
Withdrawn and Over-Controlled	3.04	2.62
Theory vs. Practice	1.46	1.20
Broad vs. Direct Relevance	0.62	0.49
Freedom of Choice	1.29	1.29
Emphasis on Citizenship	5.29	4.92
Thinking vs. Facts and Techniques	1.46	0.99
Difficult vs. Easy	1.86	1.37
Emphasis on Ability to Express	0.04	0.07
Emphasis on Integration	1.15	0.57
Emphasis on Understanding People	1.24	1.12
Emphasis on Management	2.46	2.44
Technical vs. Humanities	2.70	2.96
Emphasis on New Developments	0.35	0.37
Opportunity to Specialize	3.01	2.39
Constant	-63.07	-55.53

TABLE 6-33

Classification among Tech Transfers to LA, to Business, and Tech Persistors Using Functions from Table 6-32

Actual Group	Predicted Group			
	Transfer to LA	Transfer to Business	Tech	Total
Transfer to LA	16	5	4	25
Transfer to Business	4	13	0	17
Tech	9	17	80	106

	Group Means on Discriminant Functions	
	I	II
Transfer to LA	63.06	61.14
Transfer to Business	55.70	56.05
Tech	53.60	55.52

scales and the thirteen scales for the realistic evaluation of one's chosen curriculum, are contained in Tables 6-34 and 6-35. The accuracy of the classification scheme developed is again quite high, with 76% of those transferring to LA, 82% of those transferring to Business, and 85% of those persisting in Tech being correctly classified. The value of the generalized Mahalanobis D-Square obtained is 240, which is also significant at $p < .001$ with 48 degrees of freedom.

When these results are compared to those contained in Chapter Four, it becomes apparent that classification of those who transfer from Tech has improved by the time the students have become seniors. To some extent, the elimination of those who drop out makes the problem of classification somewhat easier. However, the differences among these three groups of students have also increased, a fact which may have some influence on the accuracy of classification among these students as seniors.

TABLE 6-34

Discriminant Function Coefficients Using Data on Eleven Scales of Personal Preferences and Thirteen on Realistic Expectations of the Curriculum

Variable	Function Coefficients	
	I	II
Realistic	1.89	1.61
Intellectual	1.83	0.99
Social Responsibility	0.83	1.16
Conventional	1.81	1.44
Enterprising	0.10	-0.03
Artistic	0.41	0.14
Aggressive	1.15	1.25
Conscientious	1.53	1.34
Masculine	-0.65	0.37
Status	2.00	1.16
Withdrawn and Over-Controlled	1.15	0.93
Theory vs. Practice	0.66	0.75
Broad vs. Direct Relevance	-0.21	-0.02
Freedom of Choice	0.53	0.57
Emphasis on Citizenship	5.52	5.33
Thinking vs. Facts and Techniques	2.34	1.94
Difficult vs. Easy	1.98	1.53
Emphasis on Ability to Express	-0.52	-0.32
Emphasis on Integration	1.36	0.81
Emphasis on Understanding People	0.06	-0.11
Emphasis on Management	1.73	1.69
Technical vs. Humanities	2.45	2.92
Emphasis on New Developments	0.94	0.80
Opportunity to Specialize	3.44	3.13
Constant	-58.67	-50.17

TABLE 6-35

Classification among Tech Transfers to LA, to Business, and Tech Persistors Using Functions from Table 6-34

Actual Group	Predicted Group			
	Transfer to LA	Transfer to Business	Tech	Total
Transfer to LA	19	4	2	25
Transfer to Business	2	14	1	17
Tech	11	5	90	106

	Group Means on Discriminant Functions	
	I	II
Transfer to LA	58.66	55.11
Transfer to Business	49.67	48.68
Tech	46.61	50.16

CHAPTER SEVEN

IDENTITY PROCESSES: A STATEMENT OF THEORY

We began this report with three related questions about occupational commitment and choice which can be restated as follows. First of all, what seem to be some of the determinants of the decision to enter one field of study rather than another? Secondly, why is it that some students become dissatisfied with their original decisions and find it necessary to either leave or to transfer into some other field of study? Finally, to what extent do students change during their undergraduate years and how can one explain those changes that do take place? Empirical data that are pertinent to these questions have already been reviewed. There remains the problem of attempting to "make sense" of these data and to review them in some systematic fashion. For purposes of interpretation, we shall make use of some ideas about identity and change in identity, particularly as these ideas apply to college students and to their occupational decisions. In this chapter, the pertinent theory will be reviewed. In the final chapter, the theory will be applied to the data and used as the basis for a series of interpretations.

§1. Identity: An Overview.

In a number of recent writings, Erikson has made a major contribution to the study of identity and its evolution from earlier childhood experiences (1950, 1953, 1959). To some extent, he is concerned with two major problems: (1) how the past influences the present and (2) how an existing identity evolves or is modified by current experiences. Central to his discussion is the idea of a series of stages of development which in part are biologically given. They represent major problems that an individual must solve as he becomes an adult. His identity as an adult will depend upon the particular solutions that he develops for the management of these developmental stages.

Three of these stages involve adult problems with which we are not concerned. Most pertinent to this study is the fifth stage, that of adolescence, focussed upon "identity vs. identity diffusion." Thus we can locate our student population in this particular stage of development. As Erikson has stated, "The growing and developing young people ... are now primarily concerned with attempts at consolidating their social roles" (1959, p. 89). At this stage, it is clear that what one is going to be and what occupation one chooses are major elements in the establishment of an adult role. To quote Erikson again, "Man, to take his place in society, must acquire a 'conflict-free,' habitual use of a dominant faculty, to be elaborated in an occupation; a limitless resource, a feedback, as it were, from the immediate exercise of this occupation, from the companionship it provides, and from its tradition; and finally, an intelligible theory of the processes of life..." (1959, p. 110).

There remains the question of how past stages and their outcomes influence the management of the present. We will assume that an individual's current ego identity provides him with an orientation to the present and colors the nature of the adaptations and responses that will be attempted. Indeed, one's present identity can be said "... to denote certain comprehensive gains which the individual, at the end of adolescence, must have derived from all of his preadult experience in order to be ready for the tasks of adulthood" (1959, p. 101). The past is summarized in an integrated fashion through a current identity, while the outcomes of a current stage lead both to an enlargement of one's outlook as well as a possible reorganization of previous gains.

§2. Identification.

Before proceeding, it will help to discuss in greater detail how problems arise at any given stage of development and what are some of the more important determinants of possible outcomes. From Erikson's writings, one has the impression that stages begin with a characteristic "identity crisis" and come to an end with the resolution of that crisis. Now the word crisis implies a rather sudden and decisive moment in time and suggests perhaps a rather extreme peaking of emotion. We must admit that for most of our students, the sequence of events appears as more gradual and more multi-faceted than the word "crisis" usually implies. Here, we would agree with Freedman (1963) that the word, if taken literally, does not appear to be completely appropriate to describe the events associated with the adolescent stage of development.

However, some useful insights can be obtained from an examination of the term identification, particularly as it has been used by Parsons (1953, 1964) and by Bronfenbrenner (1960, 1961). Customarily one talks about a child identifying with his parents and attempting to become like them, and the process of identification may be viewed as an explanation for how parents influence children. Taken literally, it implies that one copies one's parents, as, for example, when a boy attempts to become like his father. In a simple enough society, the idea of copying may have validity. In a sense, the son of a farmer does indeed become like his father. However, in our society, boys do not usually follow in their father's footsteps. Thus, there must be more to identification than has so far been implied.

When a boy observes his father or some other adult, he can identify in them certain abilities that he himself does not possess. At an early age, these will primarily fall under the heading of physical skills. Taking for granted that these skills are of value, the boy will set for himself the objective of acquiring these skills. As he grows older, he will continue to identify additional discrepancies between his own ability and that of adults and will continue to set for himself the objective of acquiring these additional skills. Consequently, identification is a process by means of which a young man sets for himself a series of objectives. His motivation to learn is intimately related to the establishment of these objectives and this is why the ability to identify is so relevant to problems of growth and education.

Assuming that identification involves the establishment of objectives which motivate learning, then with whom does one identify and to what extent? Following Bronfenbrenner (1961, p. 201), we will state that "The fundamental notion is that the child passes through not one but a series of identifications. The nature of these successive identifications is determined by the reciprocal roles being taken by parent and child at successive stages of the child's development." Moreover, although these reciprocal role relationships with parents may be the most important source of identifications, one can indeed identify with other adults, or, in fact, with desired characteristics of any individual with whom one has stable role interactions. One might assume that identifications with those other than parents become relatively more important as an individual grows older and particularly when he is in college. It is important to note that identifications are partial. One does not usually identify with some individual in toto. Rather, one identifies with some specific ability, attribute, or characteristic that has value; the net effect is to identify some objectives that one wishes to achieve.

White, in his writings on ego psychology (1963) uses the term identification with many of the same implications, although we have ignored the distinction between identification and imitation he makes as follows: "I believe that the distinction has to turn on something internal, and that it can be indicated by contrasting the two phrases, 'wanting to do something that some one else has done' and 'wanting to be like someone else.' The first phrase is illustrated in the situation of having the salesman show you how to work the gadget you are buying. You want to know how to run it and you gladly copy the salesman's acts, but you would as willingly accept the same instruction from anyone, and if necessary you would use the diagrams in a book of instructions rather than a living teacher. In such situations nobody speaks of identification because the model has no personal importance. Anyone, anything will do, provided we become able to perform the desired act" (1963, p. 111). Furthermore, White limits the term identification to "... when the model does have personal importance..." (op. cit., p. 111) and imitation for a willingness to copy when the model has no personal importance.

For our purposes, we will use identification to refer to both processes and, in general, to identifying in the behavior of another some skill or capacity that one would like to acquire. In a sense, if identifications are partial, then a series of identifications may relate one to another in a hierarchial fashion. For example, certain identifications when the model does have personal importance involve the establishment of some primary, over-riding objectives. At other times, one identifies skills in others which are means to the attainment of these more important ends. And White's use of the term imitation would apply more nearly to these secondary identifications which represent means or which can be viewed as secondary objectives.

Now, in Erikson's description of stages of development, there are four stages prior to one labelled "identity vs. identity diffusion." These are, in order of occurrence, trust vs. mistrust, autonomy vs. shame or doubt, initiative vs. guilt, and industry vs. inferiority. In what sense do these views about identification relate to these four earlier developmental stages? We would claim that a given stage of development is concerned with certain characteristic identifications or that, in a given stage, an individual identifies for himself a certain class of related problems to be solved. As one progresses from one stage to another, the central theme of the identifications changes. For example, in the first of these four stages, an individual learns to depend on another and to make responses that sustain a relationship of trustworthy dependence. Parsons (1964, p. 85) has commented on the mutual learning at this stage as follows: "Thus even at this very elementary level, the relations between mother and infant constitute a genuine process of social interaction, of which 'care' in the sense of sheer attending to physiological needs, is clearly only one component. The child, from the beginning, is to some degree an active agent who 'tries' to do things and —increasingly with time —is rewarded or punished according to his 'success' in doing them. The mother, on her side, actively manipulates the situation in which this learning takes place."

That learning based partly on identification takes place at subsequent stages is perhaps more obvious. And it is important to note that learning during the second through the fourth stages is significantly concerned with increasing one's independence, acquiring skills, developing a mastery of one's environment, and becoming ready for intimacy with others.

§3. The past and the present.

Granted that certain learnings have taken place in the past, how do they influence current identifications and the learnings taking place in the present? To be specific, let us restrict attention to this fifth stage of identity vs. identity diffusion and begin with some observations made by Keniston (1965) on The Uncommitted. Keniston describes students who display an almost complete inability to maintain a stable set of objectives for achievement. Assuming that educational achievement entails some sustained effort toward a stable set of objectives, then it is clear that this inability to remain committed leads to serious complications in the processes of education. Elsewhere, Keniston summarizes some of the characteristics of the interactions between these uncommitted students and other adults (op. cit., p. 97).

"Every human encounter has for the alienated an ambivalent quality, so that no judgment can ever be simple and unqualified. Every relationship ultimately becomes a question of identity, of whether to be or not to be like the other person; and since identity is in these young men unsettled and unsure, so are their encounters with others. The result is an over-examined life, wherein every hour spent in any kind of close contact with another demands at least equal time for analysis, questioning, searching for motives, meanings, and effects." To state the problem in other terms, productive human interactions involve the ability to take for granted certain assumptions, to take partially on faith certain characteristics of the present situation which are pre-conditions to productive communications.

What are some of these assumptions? At the very least, one would want to be able to accept the following: that the motives of another individual are reasonable and non-threatening; that one can proceed with safety without a "complete" understanding of another; that one's physical environment is predictable, trustworthy, and usually non-malevolent; and that one need not always be self-conscious about one's abilities to act effectively in any given situation.

Admittedly, these assumptions are not always justified. Therefore, how does an individual determine whether these assumptions are valid and what procedure is followed for making these judgments? Consider what happens when two people begin to interact. We would assume that, in the first stages of interaction, a relationship which has been existing in the past will be validated and reestablished. Once a relationship has been established, then the two individuals can begin to communicate about the business-at-hand. Thus, there are apparently two types or levels of communications, one of which involves the exploration of some basic assumptions about the relationship and the other which takes for granted certain basic assumptions and involves a more impersonal or problem-oriented form of communications. Although the detailed discussion of this model of interpersonal communications will not be possible in this monograph, we will assume that the even flow of problem-oriented communications will be seriously impaired unless certain basic assumptions are justified. For example, if one seriously distrusts or fears another, then he will find it difficult to absorb what's being said, to accept without distortion, or to be at all open to influence. The inability to satisfy certain basic assumptions about a relationship acts like noise in a communications system.

We have meant to imply that decisions about a relationship are based upon cues or information of a sort, some of it non-verbal. An individual must possess some sort of a perceptual system which defines certain categories of information as relevant and the significance to be attached to them. Let us suppose that certain basic assumptions about trust, independence, and ability to control are satisfied. Apparently, these aspects of a relationship are then set aside, at least provisionally, although one continues to monitor the state of the relationship throughout. This monitoring process receives only peripheral attention as long as nothing happens to invalidate the basic assumptions.

How is this perceptual system for the maintenance of relationships acquired? We propose that this decision system is precisely what one learns from previous stages of development. In other words, these "comprehensive gains" referred to by Erikson have perceptual and cognitive implications for the establishment and maintenance of current relationships. Moreover, there is an important parallel between Erikson's description of stages in the formation of an identity and our brief description of the basic assumptions that are validated in the process of establishing a relationship. The basic assumptions to be verified follow from all previous stages of development. Indeed, there is a sense in which the process with which one adult establishes a relationship with another in order to engage in productive interaction recapitulates all of the previous stages of development in the life of that particular individual.

We have said nothing so far about individual differences, although certain implications follow quite readily from what has already been said. Consider the earliest stage of trust vs. mistrust. If one has learned to be trusting of others, then one has also developed a perceptual orientation that should make it relatively easy to establish and maintain a trusting relationship with others. Moreover- one would be likely to attach relatively benign meanings to events that occur as part of role interactions. Similarly, if one mistrusts, then a different perceptual orientation should exist which would make it difficult to satisfy those basic assumptions associated with trust. In general, differential outcomes at previous stages lead to different perceptual orientations toward interpersonal interaction. And these different orientations control to a significant extent the quality of relationships that can be established and the ease with which they can be maintained.

There is an additional implication that is consistent with the following comment of Erikson (1959, p. 61): "One of the chief misuses of the schema presented here is the connotation that the sense of trust (and all the other positive senses to be postulated) is an achievement, secured once and for all at a given stage." Indeed, let us examine what learnings are possible from every interpersonal interaction. Certainly, one usually obtains some information that is problem oriented. More importantly, the basic assumptions that have gone into the establishment of that relationship may also be viewed as a set of predictions of certain consequences to be expected from entering into that relationship. If the outcomes are as predicted, then the perceptual system associated with the establishment of the relationship will have been validated and reinforced. If the outcomes are not as predicted, then the whole procedure for establishing relationships may need to be reviewed and reorganized. In a sense, successful outcomes reinforce one's existing identity. Unsuccessful outcomes lead to a revised identity and perhaps to greater caution in entering into future relationships. In addition, are there not self-fulfilling possibilities that follow from this point of view about human interaction? If one trusts, then one communicates trust and the outcome is likely to be as expected. But if one mistrusts, then one also communicates this uneasiness, and the feared outcome may also occur as a consequence.

Before leaving this discussion, we will add a brief reference to the idea of socialization, as it is commonly used. Socialization usually refers to the indoctrination an individual receives when he becomes a part of an organization or social system. We often assume that newcomers will be taught or influenced to accept those norms and values that are important to the institution. Implicit in this formulation is the assumption that the institution is the active and initiating agent in this process of influence. However, the views we have introduced about identity and identification would suggest a different explanation for the phenomena of socialization. Is it not more likely that the newcomer himself is an active agent in this process of influence? If he is in any sense committed to membership in the organization, then he must also have identified for himself some achievements to be accomplished through participation in the organization. To the extent that an individual is committed, he is motivated to learn and to induce changes in himself. However, it is the responsibility of the institution to establish the environment within which these learnings take place. Put in slightly different terms, these identification processes give meaning to an individual's participation in an organization.

Moreover, through role interactions an individual is in a sense committed to bringing about certain changes or reorganizations in his current identity. New values which are pertinent to these objectives are likely to be acquired. Other values which are not pertinent are more likely to be either ignored or resisted. In short, a university should be able to influence students but in restricted ways. And the active control of the process of socialization remains rather significantly with the student.

§4. Some educational implications.

There should follow from this discussion a variety of implications for our understanding of educational processes, particularly at the college level. Certain implications should contribute to our understanding of student behavior and the choices they make. Other implications will have to do with the management of an educational environment.

First of all, the commitment to learn and to prepare for a career would appear to depend upon the ability to make some primary identifications that help define a student's long-range objectives. Very likely, these identifications have taken place prior to entrance into college. They may very well depend on an individual's fundamental trust in life itself and in social institutions as well as in his confidence in himself and his assessment of his own abilities. Consider a student without the resources to make such a commitment. We would expect him to be relatively unmotivated to learn and less willing to tolerate the stresses associated with a sustained effort.

In addition, learning takes place through interactions with others and through the ability to make secondary identifications that are pertinent to the achievement of primary objectives. To be specific, taking on the role of student implies satisfactory role relationships with professors and other students. It would follow that a sense of trust, of autonomy, of industry are all pertinent to the ease with which productive role relationships at the university can be established and maintained. It would also follow that the lack of these gains from previous stages of development predisposes an individual toward identity diffusion and leads to complications in those roles that are pertinent to the pursuit of an education.

From what we have said so far, there is almost an implication that a sense of identity or of competence (White, 1959, 1963; Smith, 1966) is unidimensional. If this were so, then it would be difficult to explain why students make different career choices or how there can be a variety of identities, all of which facilitate learning and achievement. In order to state the problem more clearly, let us review briefly some observations made by Stein (1964) on creativity among chemists. For a chemist to be productive, he must be able to fashion for himself a viable set of roles which permit him to become integrated into the functioning of an organization. As Stein has shown, there are a variety of solutions possible to this problem of relating oneself to an organization. He describes three "styles" or typologies, all of which are compatible with successful performance. For example, one may be highly achievement-oriented and at the same time willing to take into account the interpersonal needs of others. Or in addition to a strong achievement orientation, one may also be highly aggressive and competitive. There is a third type of individual who is highly disciplined and organized and who produces more because "he ought to" than because of any inherent satisfactions to be obtained. Elsewhere, both Stein (1964, pp. 296-302) and Smith (1966) have described studies of Peace Corps volunteers. As with the chemists, there are several personality styles associated with success, although these different individuals achieve success in rather different ways. What implications can be drawn from these studies?

A person with one type of personality is comfortable and productive when certain types of interpersonal relationships can be established and maintained, but might be quite uncomfortable and unsuccessful if it were necessary to maintain certain other styles of interaction. Secondly, in a given organization, there will exist a variety of roles with rather different interpersonal requirements or potentialities. Somehow, a given individual has to look at possible statuses and positions in an organization as if he were buying a suit of clothes. Will it fit his requirements? We note that a position may be made to fit in either of two ways. It may fit ready-made, off-the-shelf, without alterations or some alterations may be required if the fit is to be at all satisfactory. Again, as with clothes, we would predict that successful accommodation is easier when the alterations can be kept to a minimum. And, fortunately, clothes will be available in several styles so that a variety of customers can be satisfied.

There is another important implication that follows. Success in achieving a sense of identity would appear to be only indirectly related to what has happened to an individual at previous stages in his development, although the precise form of one's identity may depend much more closely on the outcome of previous stages. What is important is that he be able to integrate all of his capacities and limitations into a viable whole. Actually, there are a number of educational studies which indicate that there is no simple relationship between personality types and success or survival in college. For example, Brown (1956), Friedenberg and Roth (1954), and Heath (1958) have each described a variety of ways of adjusting to college life, all of which are reasonably satisfactory. Similarly, Nordstrom and Friedenberg (1961), in a study of successful students in the natural sciences who abandon their careers, have shown that there are several types associated both with leaving as well as remaining committed to their original careers. Also the recent study by Warren (1966) adds additional information on the wide variety of adjustments possible to college life.

CHAPTER EIGHT

SUMMARY AND INTERPRETATION

Having completed this statement of theory, what implications can now be drawn for the questions about choice of school and of occupation that are the subject of this report?

§1. On choice and tentative* commitment.

It would appear that the process of choice begins with the awareness that one must be made. In a sense, knowing that one has to make a choice means that one is also confronted with a problem to solve. What are some of the elements that help to determine the outcome? To some extent, an individual's identity includes a set of judgments about himself, his abilities, resources, and competence, and these judgments are quite pertinent to any decisions that must be made about career and occupation. Secondly, an individual has internalized a set of values about what ought to be or would be desirable which are essential to the making of these decisions. These values are a by-product of previous stages of development and may well follow from identifications made in the past with significant figures in the individual's life. Finally, an individual must have knowledge of what occupations exist and to what extent they are reasonable possibilities for him.

Along these lines, there would appear to be a number of determinants of a student's decision to enter the College of Liberal Arts. Referring to the data introduced in Chapter Three, the students entering LA are reasonably ambitious and concerned with success and status. But, on the whole, they are moderately optimistic about their ability to achieve. They take somewhat for granted that they will be able to maintain a high standard of living or to achieve a satisfactory status in life. Interestingly enough, they are not particularly motivated by the desire to avoid a low-level job.

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*This emphasis on tentative commitment, to be followed by an exploration of that commitment, is similar to the views expressed by Super (1953; 1963, p. 81) on stages in the choice of an occupation.

As for their choice of a career, they employ a number of criteria for evaluating the possibilities open to them. They have a strong orientation toward careers in the professions of law, medicine, dentistry, and, to some extent, teaching. Many of them wish to avoid involvement in large-scale organizations. Of the three schools, students in LA are least interested* in careers in management or administration. They apparently want a career that will be intellectually and technically challenging and one that will permit them to work with people and to help people. From the data, we have the impression that these students are reasonably confident about their intellectual abilities and reasonably secure in their ability to interact successfully with others, particularly in informal settings. It is interesting to note that they are less confident about their ability to persuade others or to take on administrative responsibilities.

Their orientation to an undergraduate education is consistent with their preference for a career in a profession and with their relative lack of anxiety about success. Even though they place a high value on preparing for entrance into a profession, they are somewhat more able to value education as an end in itself. Moreover, they place high value on a program of studies that is broad, challenging, and not limited to preparation for a career.

Rather different themes are expressed by those who enter the School of Business. In many respects, this group is both the most ambitious and the most conventional. Whereas those students in LA seem to take financial success and status for granted, the Business students focus quite explicitly on the rewards to be obtained and are perhaps less optimistic about the possibilities for success. They also have a strong negative objective: to avoid a low-level job.

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*Similar findings for students in other universities are in a recent Fortune article: see Norton-Taylor (1966).

As students in Business, it follows naturally that they want and expect careers in administration and management. One has the impression that a career in management means different things to different students. Some want to prepare themselves for some area of technical responsibility in accounting, finance, or sales. Presumably, these students are more willing to accept roles and responsibilities that are defined for them by an organization. Even larger numbers of students appear to view themselves as potential entrepreneurs: as wanting to create new organizations or to fashion for themselves their own roles in an organization.

These students expect careers which will not be too demanding technically or intellectually. They expect success to depend much more on administrative ability, on leadership, and on the abilities to influence and persuade others. One might advance the interpretation that these students are less confident in their intellectual ability and much more confident about their ability to acquire interpersonal skills or to influence and persuade others.

Those students who persist in Tech display certain other characteristic reasons for the choices they make. In common with those in LA, they place high value on intellectual competence and appear confident in their intellectual ability. Like those in Business, they expect careers in organizations, to begin as an engineer, but to graduate ultimately into a position in management or administration. From much of the data, one associates with the engineering students a "quest for certainty" about their careers. They appear to value a career in which success is a matter of orderly progression from one well-defined position to another. Moreover, another interesting implication can be drawn from their expectation that success depends upon hard work and technical competence rather than interpersonal skill. Technical competence can be acquired by formal training and be evaluated against relatively public, impersonal and universalistic standards. Technical competence can be put to the test and evaluated in relatively unambiguous terms. But leadership ability and the ability to persuade are much more ephemeral. These qualities are not necessarily acquired in school nor can they be easily evaluated in the classroom. The students in Tech appear to want an immediate feedback, some form of reassurance that they will be able to succeed. Accordingly, they choose occupations such that their competence can be readily demonstrated in school and in the classroom. One notes that, in absolute terms, these students expect less in the way of rewards than do students in LA or Business. In relative terms, students in Tech are quite likely to expect a higher standard of living than that of their parents. They apparently have more to gain in terms of relative mobility than do students in the other two schools. In line with this emphasis on mobility, their view of education is relatively narrow: they want above all to be professionally prepared and to avoid a low-level job. Finally, these students want a much more impersonal career and a much more limited involvement with others than do students in LA and Business. The Tech students place less value on status; they are less aggressive and less enterprising. They will be satisfied with a career that neither involves helping people nor working with them.

§2. On changing one's commitment.

There remains the question of why those students who transfer ever made their initial choice. Secondly, why did they abandon these initial choices and what attracts them to the particular alternatives to which they transfer? There are also questions about the choices made by those who leave voluntarily or are dismissed from Tech.

From the data in Chapter Four on those who transfer to LA, it is apparent that the potentiality for dissatisfaction is present even before these students enter the program. On the whole, they expect their program of studies to differ in important respects from what they view as ideal —they expect greater discrepancies between ideal and realistic evaluations than do those who persist. They would like a broader program of studies, one that is less limited to professional preparation, and one that offers greater freedom of choice. Although their initial career plans resemble those made by the Tech persistors, they appear to be quite ambivalent about the nature of these careers. A career in engineering and management may possibly satisfy their needs for money, security and prestige, but they expect too little opportunity for independence, for self-realization, or for interpersonal satisfactions. In short, there are significant discrepancies between their ideal image of a career and the choices that they initially make.

This leaves us with a paradox. Those who transfer to LA had strong reasons for not choosing a career in engineering. Yet there must exist some explanation for why they made that choice initially. On the positive side, these students place high values on technical proficiency and intellectual competence. A career in engineering and a program of education in engineering meets these requirements. Moreover, these students have performed well in high school and apparently expect to continue to do so. In addition, rewards, as measured in money or prestige, are not primary criteria of choice for these students.

Now, when one thinks about criteria for choosing a career, one usually thinks of those that help characterize the work one will be doing and the kinds of responsibilities that will be involved. There would appear to be other criteria of choice, such as the probability of success in a chosen profession and the degree to which a career role and the sequence of steps in preparing for a career are well defined. We propose, by way of explanation, that those who transfer to LA consider as possibilities only those careers that are well defined with respect to entrance requirements and probability of success. Although they may be ambivalent about their initial choices in engineering, these are at least clear-cut ones. If parents or others ask what one intends to do, he can at least give a rather definite answer which will be understood and often accepted.

On the other hand, choosing a program in Liberal Arts would appear to involve a tolerance for ambiguity and perhaps an extended time perspective that those who transfer to LA do not possess. There is often no direct connection between career and program of study. If one wishes to remain uncommitted and to continue to review possibilities, then the choice of a program in Liberal Arts has advantages. But if one needs the security of early commitment and of a well-defined career objective, then there are disadvantages to entrance into a liberal arts program. Of course, there are well-defined possibilities for which a Liberal Arts program is appropriate and perhaps essential: Medicine, Law, a career in research or as a college professor. However, these professions involve graduate education. Eventual success in these careers is uncertain, and induction cannot take place until some time well into the future. In short, we are proposing that these students originally considered only careers that have relatively unambiguous consequences, that are not too ambitious, or that offer a high probability of limited success. Why should some students employ these criteria, while others —those who enter LA directly — find it unnecessary to do so? To some extent, one's family background and socio-economic class have an important influence on the career possibilities that one is willing to consider. Students who choose LA initially often come from upper-middle-class family backgrounds. Their parents are often engaged in a profession and are well educated. Against this background, those careers associated with a liberal arts program may seem perfectly reasonable and not at all ambitious. Those who transfer to LA come from more modest backgrounds. A career in engineering seems like a safe possibility. Careers associated with Liberal Arts may seem to be much more of a gamble and much more difficult to justify.

We believe that there is one other major reason for the initial choices made by these students. In Erikson's terminology, these students are somewhat characterized by identity diffusion rather than by a well developed sense of identity. Specifically, they choose a career which is inconsistent with many of their desires and capacities. In addition, they hold to a number of values which are mutually inconsistent and which, in some respects, conflict with each other. If one is uncertain about himself and what he believes, then one may be more inclined to make a cautious choice of a career. Conversely, one may have to have a relatively well developed sense of identity in order to make a more hazardous choice of a career and program of studies.

Granted the presence of some identity diffusion and ambivalence both over chosen career and program of studies, it follows that these students are already predisposed to transfer when they begin to enter their freshman year. There are at least two conditions that precipitate the decision to transfer: academic difficulties and a greater awareness of the desirable consequences of transferring to Liberal Arts. Some of those who transfer to LA in the first year are actually in academic difficulties, while many are maintaining a "C" average or better and are in no serious difficulty. On the other hand, many of these students are performing much less well than they had expected. In a number of interviews, students talk about how well they had done in high school, how hard they are working in college, and about their discouragement over their level of performance. Difficulty with courses in mathematics and physics is an important precipitating factor, for many students assume, and perhaps with justification, that success in engineering is highly correlated with success in these particular courses. Moreover, these students have high needs for status and feel that it is very important to get ahead in life. In short, although objectively they may be performing at a satisfactory level, relative to their own aspirations, their performance is disappointing.

What do they hope to accomplish by transferring to LA? As we pointed out in Chapter Six, many of these students do not have definite career plans in mind at the time of transfer. They are undoubtedly aware at the time of transfer that they need not choose a departmental program of study until their junior year. In a sense, transferring to LA provides them with a psychological moratorium, i.e., with an opportunity to find themselves and a safe interlude before firm decisions about program and career must be made. Indeed, on the basis of their interviews, one often has the impression that they recognize themselves as in a crisis of identity and that they are actively re-evaluating and reformulating their long-range plans.

Those students who transfer to Business also have an initial ambivalence about engineering which predisposes them to transfer. They too expect greater discrepancies between ideal and realistic program expectations than do those who persist. They expect too much of an emphasis on theory and on breadth and a program that will be too narrowly limited to technical considerations. Unlike those who transfer to LA, these students are strongly oriented toward eventual careers in management. Much of their potential dissatisfaction with the Tech curriculum appears to stem from these career orientations. Programs in Tech may be good preparation for a career in engineering but not for one in management or administration. It is interesting to note the nature of their ambivalence with a career in engineering. They worry about security and the opportunities to earn a substantial income. While in engineering, their actual expectations about earnings are lower than are those of any other group contained in the study. They are concerned about their opportunities for self-realization and for exercising leadership. One over-all impression one has from these data is that these students are strongly motivated by the possibility of failure. They are quite conventional; they want to maintain status, to avoid a low-level job. They want assurance that any choice they make will turn out reasonably well. They differ from those who enter Business initially in one important respect. Whereas the Business students are not strongly oriented toward technical proficiency, those who transfer to Business are. These students show less interest in careers as entrepreneurs and more interest in filling technical roles in a complex organization.

What events precipitate their decisions to leave Tech? Realistically, they do not perform* very well academically and are in more difficulty than those who transfer to LA. From their interviews, one has the impression that they are more frustrated in the first year by an emphasis on fundamental preparation. They would like more practical courses and to be able to see more clearly the relevance of their courses to their intended careers. Moreover, coupled with their uneasiness about failure, transferring to Business seems more like a safe course of action. As we mentioned before, transferring to Business does not appear to involve any very major change in their long-range career plans. Completion of a program in engineering would have made possible a career in management. But a program in Business is a means to the same end and apparently offers a greater probability of success. After these students transfer, they are quite likely to choose some one of the specialized programs of study such as accounting, finance, or marketing, rather than the more general program of Liberal Arts Minor. Apparently, there is some security in a commitment to a well defined specialty. Such a choice may make it easier to visualize in rather definite terms the career possibilities open to them after they graduate.

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*We are in no sense proposing a causal interpretation about academic difficulties. These students may perform at a marginal level because of lack of motivation, although their lack of motivation may as well be a consequence of disappointment about performance.

Those who drop out are not particularly predisposed toward leaving engineering. They want to be engineers and show relatively little ambivalence about this choice of a career. To some extent, they would like an engineering curriculum that is more practical and has less breadth than the one preferred by the Tech persistors. For reasons that are not at all clear, they try to succeed and never seriously consider transferring to another school at Northwestern. From an unpublished follow-up study, carried out by the Technological Institute, we have some impressions of what these students attempt to do* after they leave the campus. Some transfer to another program in engineering; others pursue some technical program such as accounting. In short, they appear to maintain the same long-range objectives of acquiring technical proficiency and entering industry. But they find some more appropriate means to the achievement of these ends.

It is interesting to compare these data on dropouts to data reported in another recent study by Suczek and Alfert (1966) on college dropouts. They report as follows: "Male dropouts are characterized by independence and rebelliousness and by conflict with their families, with authority and with convention. They are adventurous both in terms of physical activity and in the realm of ideas, and they express interest in intellectual pursuits. They feel somewhat confused and are aware of difficulty in functioning (op. cit., p. 38). To some extent, data from the two studies are not readily comparable, but the findings would appear to be somewhat in conflict. For example, the dropouts in our study score as less intellectual, more conventional, and more conscientious and sociable than do those who persist in Tech (Table 4-23). From Table 4-8, the Tech dropouts appear to be mainly interested in success and not in independence. We believe that there is an explanation for these apparent differences. In the Suczek and Alfert study, most of the students are leaving programs in Liberal Arts. The population to which they are being compared is a varied one, but it would appear that students enrolled in Liberal Arts programs are in the majority. We would assume* that there are major differences between students who leave programs in Liberal Arts and those who leave engineering. Indeed, there may not exist a single uniform explanation for all dropouts, let alone for all students who transfer. Rather it is likely that one needs separate explanations for different types of dropouts. Moreover, students who transfer out of programs in Liberal Arts may do so for reasons quite unlike those that motivate those students who transfer from engineering.

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*We are indebted to Associate Dean William T. Brazelton for an opportunity to examine these data.

There is one additional observation to be made about these transfer students that is deserving of comment. The decision to transfer is apparently a difficult one to make and students about to transfer or who have recently transferred appear to be under considerable stress. This degree of stress is particularly noticeable during the interviews held with the transfer students. Why should a decision to transfer be accompanied by stress? Following the ideas about identity and identification previously discussed, a decision to ransfer should have the following consequences. Prior to transfer, a student has identified for himself a new set of objectives —to prepare himself for a career — and has made a tentative commitment. This tentative commitment represents a kind of extension to his existing identity which has not yet been validated. Furthermore, this identification is a consequence of significant role relationships at earlier stages of development which invest it with emotional significance. By transferring, a student abandons this tentative commitment and is faced with the problem of reestablishing his identity. We would assume that it is stressful to have to reorganize one's image of oneself and that the stress is not significantly reduced until a new tentative commitment has been made and subsequently reinforced or confirmed.

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*One other important difference is that Suczek and Alfert distinguish between those who fail from those who drop out voluntarily. In our study, the two categories are lumped together.

83. On the impact of an undergraduate education.

The data on changes taking place in these students have been reviewed in Chapters Five and Six. Certain of these changes are of particular interest and are deserving of comment and interpretation. First of all, seniors in general display less involvement in their careers and in career preparation than they did as freshmen. For example, seniors are less likely to place a high value on getting ahead in life than they did as freshmen. When asked about factors influencing their decision to go to college, they are much less likely to emphasize the need to gain professional skills or intrinsic interest in learning in my field. These findings hold both for students who persist as well as for those who transfer. Thus, their involvement in their careers appears to have moderated somewhat. There are several possible explanations that might be advanced. Perhaps, the change is only in how they express themselves. As freshmen they may have been openly enthusiastic and idealistic. As seniors, it may be more in style to exhibit a decent restraint on their expressions of enthusiasm. On the other hand, they may now feel more confident about their preparation for a career and take for granted that success will follow. A third possible explanation is that they have become more cynical about their chosen careers. Indeed, a similar observation about medical students has been made by Becker and Geer (1958) in their study of internes in medical school.

Elsewhere, in the data on what would constitute an ideal job and on what one expects realistically, there is some additional evidence for an increased cynicism among seniors. However, this finding holds only for those who persist in LA, Business, or Tech, but not for those who transfer. The persisting seniors feel reasonably confident that they will be adequately rewarded with money and prestige but feel more pessimistic about the opportunities for self-expression, for leadership, and for independence. These findings hold particularly for those in Business and in Tech, who are most likely to work as members of large-scale organizations, but it holds somewhat for those in LA. In general, these persisting students appear to recognize that ours is an affluent society and that rewards will follow. It is also an organized society and organizations tend to impose restrictions and constraints on the behavior of their members. Interestingly enough, those students who transfer become more optimistic as seniors about their careers than they were as freshmen. This change is not surprising. After all, they gave up career plans that were rather inconsistent with their own evaluation of themselves. Having transferred, they recognize a greater consistency between their career choices and their self-evaluations and become both more satisfied with and more committed to their chosen careers.

Student views about their programs of study also change a good deal. One major shift is that all students, with the partial exception of those who transfer to Business, come to value more highly a program that emphasizes theory, breadth, lack of specialization, and learning to think abstractly.

This conclusion follows from changes in the ratings for an ideal curriculum. In a sense, these changes may be interpreted as a vote of confidence in certain contemporary trends in higher education. With respect to these judgments about curriculum, seniors have undoubtedly become more in agreement with their professors than they were as freshmen.

In addition, with respect to the data on discrepancies between ideal ratings and realistic evaluations, the three groups of persisting seniors have become more dissatisfied with their programs of study than they expected to be as freshmen. In an over-all sense, the seniors indicate even more strongly their judgment that the programs are too narrowly technical and offer insufficient emphasis on the non-vocational aspects of a college education. It is not clear how to interpret this finding. To some extent, seniors are undoubtedly more outspoken in their opinions. Having actually experienced the programs, they may feel much more confident in the accuracy of their judgments. On the other hand, we have elsewhere noted that the seniors' involvement in their careers seems to have diminished somewhat. These programs of study may well be too narrow when evaluated against the total set of objectives held by these students.

One notes again that the transfer students are exceptions to the conclusion that has just been drawn. As seniors, the discrepancies between their ideal ratings and their realistic evaluations have decreased. This is further evidence that they are more satisfied with those programs to which they transfer than they had been with their original programs in engineering.

From the personality measures included in these questionnaires, one also notes that certain changes have taken place when seniors are compared with freshmen. The most striking changes are those revealed by the measures on personal preferences and values (Tables 5-29 and 6-27). Let us consider first the data for those persisting students in LA, Business, and Tech. The changes in the intellectual orientations of these students are small. These appear to be rather stable characteristics. The one exception is that all three groups show an increase in scores obtained on the scale of artistic value. The changes in interpersonal orientations are larger and in general represent increased scores on the scales of socially responsible, enterprising, aggressive, and status seeking. What is more striking is that the changes in the Tech students in general exceed the changes obtained by those in LA and Business.

A somewhat similar pattern of change holds for those students who transfer. The students who transfer to LA show a considerable increase in artistic orientation but relatively little change on the other three intellectual orientation scales. They show rather substantial increases on all four of the interpersonal orientation scales. Those who transfer to Business also have substantial increases on all four of the interpersonal orientation scales. However, under the heading of intellectual orientations, they are the only group in the study to show a significant decrease in intellectual orientation and a large increase toward becoming more conventional.

What interpretation can be offered for the finding that students change more on the four interpersonal orientation scales? These students are in the stage of development in which they are about to take their places as adults and to take on adult responsibilities. To become more enterprising and more aggressive may be precisely what one would expect at this stage of development. However, on these four scales, why should Tech students and those who transfer show greater increases than those who persist in LA and Business? One major influence affecting changes in the transfer students is that they have transferred. We have suggested that the transfer students are characterized by some diffusion of identity before they make the transfer. By the time they are seniors, they have apparently been able to develop for themselves a more integrated sense of identity based upon a new and more viable commitment to an occupation. The observed personality changes may be one aspect of these changes in identity.

However, a somewhat different explanation may be advanced for the magnitude of the changes observed in those who persist in Tech. As a private university, Northwestern may be viewed as a middle class to upper-middle class institution: i.e., it has relationships to similar class groupings in the larger community and shares somewhat similar values. Let us consider the majority of students who enter initially the programs in LA and Business. These students also come from middle class and upper-middle class family backgrounds. As a consequence, entering Northwestern has continuity with their family backgrounds and they have little reason to feel out of place or in strange surroundings. However, those who enter Tech as well as those who eventually transfer come from much more modest backgrounds. By coming to Northwestern, they enter a different segment of society. In a sense, this is part of a transition from one segment of society to another and essential to their upward mobility. Furthermore, there is a discontinuity between their family background and their new social environment at Northwestern.

From this analysis, one might expect the Tech students to be quite cautious as freshmen and somewhat restrained in their interpersonal orientations. Three years later much of the acculturation has been completed. They are now at least partially assimilated to a new set of values and to a new status in society. Moreover, their ability to survive has been tested and the outcomes have been substantially successful ones. Thus, we would propose that much of the change observed in the Tech persistors as well as those who transfer has to do with their mobility and to their being successfully assimilated into a higher status in society.

There is some support for this interpretation in Parsons' discussion of "The school class as a social system: some of its functions in American society" (1959). It is clear that high school boys from working class or lower-middle-class backgrounds cannot assume that they will go to college. The school itself operates as a selection device and helps to determine the possibilities for upward mobility. There are self-selection factors operating in the family environment as well (see Kahl, 1953; Davie, 1953; McArthur, 1954; Sewell and Haller, 1959). Undoubtedly, a boy in junior high or high school must be aware that decisions are being made that will either channel him toward or away from entrance into college. We would assume that a student from such a background must be highly motivated and highly organized if he is to be eventually admitted into a program in Tech. Perhaps, the personality characteristics in evidence among the Tech freshmen are a consequence of this concern with upward mobility. But three years later, his success in college is assured and he is less inclined towards caution in his dealings with others.

There is one other interesting observation that can be made about these personality changes. Those in LA and Business and those who transfer to LA show little change in the scale on conservative orientation. Those transferring to Business have become much more conservative as seniors than they were as freshmen. Similarly, the Tech persistors become somewhat more conservative. In a number of studies on the effects of social mobility, the conclusion has been drawn that rapid upward mobility as well as downward mobility are often associated with an increase in conservative outlook (Lipset and Bendix, 1960; pp. 68-71). Many of the Tech students as well as those who transfer to Business are upwardly mobile. Moreover, those who transfer to Business seem to be the most uneasy about their status and the most anxious about preserving some reasonable position in society. We would infer that these observed increases in conservative outlook are partly a function of upward mobility and of these students' accommodations to the stress that accompanies that mobility. Admittedly, these very complex relationships between social class, occupational choice, and personality change have scarcely been touched upon in this report. They deserve further study and may well be of major importance for our eventual understanding of the processes of career commitment and occupational choice.

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APPENDIX A

NORTHWESTERN UNIVERSITY

Evanston, Illinois

STUDENT OPINION SURVEY

Instructions

(Please read this before you begin.)

1. This survey is being given in order to obtain information from students about why they are coming to Northwestern and some of their opinions about the programs of study they are about to undertake.

2. When answering questions with a limited number of alternatives, please choose the statement which comes closest to describing your views, opinions, or personal history, even if it does not fit your situation precisely. Answer each question as best you can.

3. To indicate your answer to the questions, you are usually instructed to CIRCLE one of the numbers printed next to each alternative. These numbers are assigned arbitrarily and will be used in the processing of the data.

4. We are asking you to sign your name. However, all of your answers will be kept confidential. No one will see what you have written except for the members of the research team who will process the data. Your candid answers will be appreciated and are necessary for the success of the study.

Thank you very much for your help.

I.

1. Name ________________________________

2. What school are you now planning to enter (i.e. Liberal Arts, Business, Technological Institute, etc.)?

   ____

3. What is your age (to the nearest birthday)? ______ years.

4. What is the size of your home town? (Circle the number of your answer.)

   1. Less than 2500
   2. 2500 - 5000
   3. 5000 - 15,000
   4. 15,000 - 50,000
   5. 50,000 - 200,000
   6. Over 200,000

5. About how much money do you expect to earn per year about 10 years after you're through with school (assuming present buying power of dollar continues)?

   1. $ ________
   2. Don't expect to be working.

6. What did your father do for a living at the time you were born?

7. What does he do now for a living?

8. In which of these four groups do you consider your family to be?

   1. Upper class
   2. Middle class
   3. Working class
   4. Lower class

9. How do you expect your own future standard of living (economic income) to compare with that of the family in which you were brought up?

   1. Higher standard
   2. About the same
   3. Lower standard

10. Please indicate how far your parents went in school, as follows: (Circle one number in each column.)

	Mother	**Father**
Eighth grade or less	1	1
Ninth through eleventh grade	2	2
High school graduate	3	3
Part college	4	4
Bachelor's degree	5	5
Master's or professional degree	6	6
Doctorate	7	7

11. Which of the following best describes the situation in your family when you were in high school?

1. It was naturally assumed that the children would go to college.
2. Children who wanted to go to college were encouraged to do so by one or both parents, but it wasn't assumed that all would go.
3. It was not assumed that any of the children would go to college.

12. Where do you plan to live when school is in session?

1. In a university dormitory
2. In a fraternity house
3. With my parents
4. Other (specify) ______________________________

II.

1. What three activities in your life do you expect to give you the most satisfactions? In the following list, indicate your first choice by writing "1" in the left hand margin, your second choice with "2," and your third by "3".

a. ________ Career or occupation.
b. ________ Family relationships.
c. ________ Leisure-time recreational activities.
d. ________ Religious and church activities.
e. ________ Participation as a citizen in the affairs of your community.
f. ________ Participation in activities directed toward national or international betterment.
g. ________ Other (please specify).

2. What job or starting position would you most ideally want to enter when you first graduate from school and begin your working career? (Specify.)

____

Realistically, what sort of a position do you expect when you first graduate?

____

3. If your highest aspiration should be realized, what kind of position would you like to hold at the peak of your career?

____

4. Most students have some opinions of what their ideal job ought to be like and what requirements it ought to satisfy. Some of these characteristics are listed below. As you read the list, consider to what extent a job or career would have to satisfy each of these requirements before you would consider it ideal. Indicate its importance for you by writing "H" for high, "M" for medium, "L" for low in column one.

Realistically, the job or career one actually selects may not meet all one's requirements for an ideal job. After completing column 1, will you indicate what characteristics you expect realistically to find in the career you have selected or intend to select in column two.

The ideal job for me would have to:

	1 Ideally	2 Realistically
a. Provide me an opportunity to use my special abilities or aptitudes.	______	______________
b. Provide me with a chance to earn a good deal of money.	______	______________
c. Permit me to be creative and original.	______	______________
d. Give me social status and prestige.	______	______________
e. Give me an opportunity to work with people rather than things.	______	______________
f. Enable me to look forward to a stable, secure future.	______	______________
g. Leave me relatively free of supervision by others.	______	______________
h. Give me a chance to exercise leadership.	______	______________
i. Provide me with adventure.	______	______________
j. Give me an opportunity to be helpful to others.	______	______________

5. When you think of the qualities that will get a young person ahead in the field you have chosen, which of the following ones would you say are essential: Circle your answers.

1. An ability to express yourself
2. A special talent or aptitude
3. Luck
4. Leadership ability
5. Ability to get people to like you
6. Understanding of other people
7. Good grounding in basic theory
8. Practical knowledge of facts in your field
9. Ability to convince and persuade other people
10. Devotion to the work
11. High degree of intelligence
12. Knowledge of special techniques
13. Lots of hard work and effort
14. Knowing influential people
15. Having social poise or "know-how"
16. Having capital or access to it
17. Organizing and administrative ability

6. Which of the following statements best describes the way you feel about the career or job you have chosen? Circle the most appropriate answer.

1. It's the only career that could really satisfy me.

2. It's one of several careers which I could find almost equally satisfying.

3. It's not the most satisfying career I can think of, everything considered.

4. It's a career I decided on without considering whether I would find it the most satisfying.

7. In your opinion, how important should each of the following be for doing well in your chosen career or profession? Indicate your answers in column one with "V" for very important, "F" for fairly important, "M" for minor importance, and "N" of no importance.

Realistically, what you expect it will actually take to get ahead in your chosen career may not coincide with what you think is ideal. In column two, indicate what you think it will realistically take in order to succeed in your chosen career.

	Ideally	Realistically
a. good appearance		
b. warm and pleasing personality		
c. dedication to profession		
d. high intelligence		
e. skillful management of time		
f. scientific curiosity		
g. integrity		
h. ability to think in an organized way		
i. research ability		
j. ability to get along with people		
k. recognition of own limitations		
l. getting real enjoyment from job		
m. ability to remember facts and memorize details		
n. ability to cope with theoretical problems		
o. ability to cope with practical problems		
p. interest in politics and world affairs		
q. ability to concentrate all your efforts on your work		
r. interest in emotional problems of people		
s. manual dexterity (with instruments, tools, machines, etc.)		
t. desire to help people		
u. knowledge of physical science		
v. learning as much as you can in your four years at Northwestern		
w. ability to remain relaxed rather than to be overly tense and nervous about your work		
x. readiness to assume responsibility		

8. Read through the statements below and circle the number beside the alternative which fits you best.

   a. Once in my life I would like to
      1. develop a valid scientific theory
      2. discover a satisfactory principle of ethical conduct
      3. invent a marketable product
      4. convince a legislature to enact one of my views into law.

   b. I would like a job where
      1. I could express my social views through my work
      2. I could organize the thinking in my field in a systematic way
      3. I could discover my true potentialities
      4. I could do work of practical importance

   c. I am filled with awe when I consider the lives of
      1. Vincent Van Gogh, Mahatma Gandhi, Albert Schweitzer
      2. Charles Kettering, Andrew Carnegie, Winston Churchill
      3. Louis Pasteur, Woodrow Wilson, Abraham Lincoln
      4. Frank Lloyd Wright, John Dewey, Albert Einstein

   d. In my spare time, I would like to
      1. teach woodcraft to a Boy Scout troop
      2. participate in a campaign for better schools
      3. discuss and evaluate different political systems
      4. learn about psychoanalysis

   e. Everyone is a little of everything, but by and large, I am mostly
      1. practical
      2. idealistic
      3. thoughtful
      4. sensitive

9. How important is it for your to have plans for the future rather clearly known to you in advance? (Circle the number of your answer.)

   1. Very important
   2. Fairly important
   3. Not very important
   4. Very unimportant

10. How important to you, personally is it to get ahead in life?

   1. Very important
   2. Fairly important
   3. Not very important
   4. Very unimportant

11. If you had your choice, which of the following would you most like to be? (Circle only one)
   1. Independent
   2. Successful
   3. Well liked

12. How important is it to your to know how well you are doing academically in comparison to the rest of your classmates?

   1. Very important
   2. Fairly important
   3. Not very important
   4. Very unimportant

13. The question that follows has to do with your feelings and attitudes about many kinds of work. The only "right" answers are your frank opinions about the following list of occupations.

Fill out your answers as follows:

Beside each occupation in the list, you will find three possible responses: a "plus," a "minus," or a "question mark."

1. Indicate the occupations which interest or appeal to you by circling the "plus" in the appropriate column.
2. Indicate those occupations which you dislike or find uninteresting by circling the "minus."
3. Circle the question mark when you are undecided about an occupation.

. + - ? Crane Operator

. + - ? Bank Teller

. + - ? Clinical Psychologist

. + - ? Poet

. + - ? Hotel Manager

. + - ? Engineer

. + - ? Private Investigator

. + - ? Mountain Climber

. + - ? Aeronautical Design Engineer

0. + - ? Automobile Mechanic

1. + - ? Social Worker

2. + - ? Anthropologist

3. + - ? Juvenile Delinquency Expert

4. + - ? Cost Estimator

5. + - ? Political Campaign Manager

6. + - ? Music Critic

7. + - ? U. N. Official

8. + - ? Test Pilot

9. + - ? Children's Clothing Designer

0. + - ? Physician

1. + - ? Author

2. + - ? Zoologist

3. + - ? Social Science Teacher

4. + - ? Actor

5. + - ? Television Producer

6. + - ? Free Lance Writer

7. + - ? Supreme Court Judge

8. + - ? Ranch Hand (Cowboy)

9. + - ? Interior Decorator

30. + - ? Lawyer

31. + - ? High School Teacher

32. + - ? Scientific Research Worker

33. + - ? Personal Counselor

34. + - ? Bank Examiner

35. + - ? Business Executive

36. + - ? Art Critic

37. + - ? Criminal Lawyer

38. + - ? Explorer

39. + - ? Stock Broker

40. + - ? Psychiatrist

41. + - ? Radio Operator

42. + - ? Personnel Manager

43. + - ? Conciliator (Employer-Employee Relations)

44. + - ? Financial Analyst

45. + - ? Master of Ceremonies

46. + - ? Playwright

47. + - ? Prosecuting Attorney

48. + - ? Blaster (Dynamiter)

49. + - ? Factory Foreman

50. + - ? Carpenter

51. + - ? Surveyor

52. + - ? Marriage Counselor

53. + - ? Physicist

54. + - ? Rehabilitation Worker

55. + - ? Manufacturer's Representative

56. + - ? Composer

57. + - ? Congressional Investigator

58. + - ? Stunt Man (Motion Picture)

59. + - ? Army General

60. + - ? Banker

61. + - ? Experimental Psychologist

62. + - ? Ward Attendant

63. + - ? Route Salesman

64. + - ? Scientific Authority

65. + - ? Insurance Clerk

66. + - ? Independent Research Scientist

III.

1. What curriculum, department, or specialized program of study are you now planning to pursue (i.e. pre-med., mechanical engineering, finance, political science, etc.)?

____

2. Listed below are some factors which might have influenced your decision to go to college (regardless of the school you chose). Please circle the number in the appropriate column which best describes the influence of each factor for you personally.

Factor	Great Influence	Some Influence	No Influence
1. To provide me with skills for entering my chosen field or profession.	1	2	3
2. An intrinsic interest in learning more about the subject matter in my field.	1	2	3
3. Wanted to continue my general intellectual growth without preference for any specific career plans.	1	2	3
4. To avoid being stuck at a low level in a field where a degree is essential for promotion or getting good jobs.	1	2	3

3. When did you first seriously consider entering Northwestern (Circle one number)?

    1. Before entering high school
    2. In high school, before my senior year
    3. During my last year in high school

4. Before you made up your mind, had you seriously considered any other school?

    1. Yes
    2. No

    If "yes" - what school or schools?

    ____

    ____

    ____

NOTE: In the following two questions you will be asked for some opinions about what sort of a program of study or curriculum would be ideal and what you expect of the program you have actually chosen or plan to choose. In answering these questions, think of all the courses you will be taking in order to complete your undergraduate work: i.e. courses directly related to your chosen career, as well as those of more general interest.

5. Most students have some opinions of what their ideal curriculum should be like. Some of these features of an undergraduate program are listed below in a series of scales. As you read the list, consider to what extent a curriculum program would have to satisfy each of these characteristics before you would consider it ideal. To indicate your answers, read the captions at both ends of each scale to get an idea of its meaning. Then circle a number which best represents how you feel. Just use your first impression and feel free to circle any number on the scale. Please do not mark in between the numbers.

1. Ideally, my chosen program should

Be concerned mostly with theory.	1	2	3	4	5	6	7	8	Emphasize practical applications of the material covered.

2. Ideally, my chosen program should

Provide broad and general knowledge of the field.	1	2	3	4	5	6	7	8	Relate directly to the kind of work I will be doing.

3. Ideally, my chosen program should

Provide me with considerable freedom for choice among electives.	1	2	3	4	5	6	7	8	Provide me with a well-laid-out program in which few choices are necessary.

4. Ideally, my chosen program should

Stick to courses that prepare me for my chosen profession.	1	2	3	4	5	6	7	8	Prepare me for my broad responsibilities as a citizen in addition to professional preparation.

5. Ideally, my chosen program should

Emphasize the ability to think logically and abstractedly.	1	2	3	4	5	6	7	8	Emphasize facts and techniques that have direct application.

6. Ideally, my chosen program should

Be difficult enough to require real effort on my part.	1	2	3	4	5	6	7	8	Be easy enough to leave me with free time for other activities.

7. Ideally, my chosen program

Should teach me how to express myself and communicate effectively.	1	2	3	4	5	6	7	8	Doesn't need to emphasize the skills of expression and communication.

8. Ideally, my chosen program should

Help me see how my separate courses fit together into a larger whole.	1	2	3	4	5	6	7	8	Leave it to me to fit together my separate courses into a larger whole.

9. Ideally, my chosen program

Should place some emphasis on understanding people and how they interact.	1	2	3	4	5	6	7	8	Doesn't need to emphasize understanding people and how they interact.

10. Ideally, my chosen program

Should help prepare me for taking on responsibility in management and administration.	1	2	3	4	5	6	7	8	Doesn't need to prepare me for taking on responsibilities in management and administration.

11. Ideally, my chosen program should

Stick to an emphasis on career and professional preparation.	1	2	3	4	5	6	7	8	Have significant emphasis on subjects of broad and general interest, like literature, philosophy, social science, history, etc.

12. Ideally, my chosen program should

Prepare me for understanding some of the new developments that are taking place in contemporary society.	1	2	3	4	5	6	7	8	Stick to material of known usefulness and established validity.

13. Ideally, my chosen program should

Provide me with an opportunity to specialize within the field.	1	2	3	4	5	6	7	8	Emphasize a broad coverage of the entire field.

6. Realistically, the program you have actually chosen or plan to follow may not satisfy all your requirements for what would be ideal. Below are listed a series of scales for describing your chosen program or curriculum. As you read this list, will you consider to what extent you realistically expect your chosen program to satisfy each of these characteristics. Indicate your opinions by circling the number which best represents how you feel.

1. I expect that my chosen program will

Be concerned mostly with theory.	1	2	3	4	5	6	7	8	Emphasize practical applications of the material covered.

2. I expect that my chosen program will

Provide broad and general knowledge of the field.	1	2	3	4	5	6	7	8	Relate directly to the kind of work I will be doing.

3. I expect that my chosen program will

Provide me with considerable freedom for choice among electives.	1	2	3	4	5	6	7	8	Provide me with a well-laid-out program in which few choices are necessary.

4. I expect that my chosen program will

Stick to courses that prepare me for my chosen profession.	1	2	3	4	5	6	7	8	Prepare me for my broad responsibilities as a citizen in addition to professional preparation.

5. I expect that my chosen program will

Emphasize the ability to think logically and abstractly.	1	2	3	4	5	6	7	8	Emphasize facts and techniques that have direct application.

6. I expect that my chosen program will

Be difficult enough to require real effort on my part.	1	2	3	4	5	6	7	8	Be easy enough to leave me with free time for other activities.

7. I expect that my chosen program will

Teach me how to express myself and communicate effectively.	1	2	3	4	5	6	7	8	Not emphasize the skills of expression and communication.

8. I expect that my chosen program will

Help me see how my separate courses fit together into a larger whole.	1	2	3	4	5	6	7	8	Leave it to me to fit together my separate courses into a larger whole.

9. I expect that my chosen program will

Place some emphasis on understanding people and how they interact.	1	2	3	4	5	6	7	8	Not emphasize understanding people and how they interact.

10. I expect that my chosen program will

Help prepare me for taking on responsibility in management.	1	2	3	4	5	6	7	8	Not prepare me for taking on responsibilities in management and administration.

11. I expect that my chosen program will

Stick to an emphasis on career and professional preparation.	1	2	3	4	5	6	7	8	Have a significant emphasis on subjects of broad and general interest like literature, philosophy, social science, history, etc.

12. I expect that my chosen program will

Prepare me for understanding some of the new developments that are taking place in contemporary society.	1	2	3	4	5	6	7	8	Stick to material of known usefulness and established validity.

13. I expect that my chosen program will

Provide me with an opportunity to specialize within the field.	1	2	3	4	5	6	7	8	Emphasize a broad coverage of the entire field.

NORTHWESTERN UNIVERSITY

Evanston, Illinois

STUDENT OPINION SURVEY

Form V

Instructions

(Please read this before you begin.)

1. This survey is being sent to upperclass students in a number of schools at Northwestern. Its purpose is to obtain information about why students choose certain professions, and what their reactions are to the courses and programs of study currently offered.

2. When answering questions with a limited number of alternatives, please choose the statement which comes closest to describing your views, opinions, or personal history, even if it does not fit your situation precisely. Answer each question as best you can.

3. To indicate your answer to the questions, you are usually instructed to CIRCLE one of the numbers printed next to each alternative. These numbers are assigned arbitrarily and will be used in the processing of the data.

4. We are asking you to sign your name. However, all of your answers will be kept confidential. No one will see what you have written except for the members of the research team who will process the data. Your candid answers will be appreciated and are necessary for the success of the study.

Thank you very much for your help.

November 20, 1964

Disregard everything to the left of this line. The numbers will be used for the IBM tabulations.

I

(1-3) Name:____________________________________

(4) Circle the school in which you are enrolled.

1. Liberal Arts
2. Business
3. Technological Institute
4. Other

(5-6) What curriculum, department, or specialized program of study are you now pursuing (i.e. Pre-Med, Mechanical Engineering, Finance, Political Science, etc.)?

____

(7)____1____

(8) About how much money do you expect to earn per year about 10 years after you are through with school (assuming present buying power of the dollar continues)? (Circle the number of your answer.)

1. Under $7,499
2. $7,500 - $9,999
3. $10,000 - $12,499
4. $12,500 - $14,999
5. $15,000 - $19,999
6. $20,000 - and up
7. Don't expect to be working

(9-10) What does your father do for a living at the present time?

____

(11) In which of these four groups do you consider your family to be? (Circle the number of your answer.)

1. Upper Class
2. Middle Class
3. Working Class
4. Lower Class

(12) How do you expect your own future standard of living (economic income) to compare with that of the family in which you were brought up? (Circle the number of your answer.)

1. Higher standard
2. About the same
3. Lower standard

(13) When did you first seriously consider going this program? (Circle the number of your answer.)

1. Before entering high school
2. During high school
3. During my freshman year
4. After the completion of my freshman year

(14) Before you made up your mind, had you seriously considered any other field?

1. Yes
2. No

(15-16) If "yes", what field or fields? __________

____

____

(17) Since you have been at Northwestern, have you ever changed from one curriculum to another?

1. Yes
2. No

(18-19) If "yes", in what other program or programs were you enrolled? __________

____

____

(20) What is your age to the nearest birthday? (Circle the number of your answer.)

1. 19 years old
2. 20
3. 21
4. 22-24
5. 25 or over

(21) Which of the following best describes the situation in your family when you were in high school?

1. It was naturally assumed the children would go to college
2. Children who wanted to go to college were encouraged to do so by one or both parents, but it wasn't assumed that all would go.
3. It was not assumed that any of the children would go to college.

(22) Where do you live when school is in session?

1. In a university dormitory
2. In a fraternity house
3. With my parents
4. Other (specify) ___________

II

What three activities in your life do you expect to give you the most satisfactions? In the following list, indicate your first choice by writing "1" in the left hand margin, your second choice with "2", and your third by "3".

(23) a.________Career or occupation
(24) b.________Family relationships
(25) c.________Leisure-time recreational activities
(26) d.________Religious and church activities
(27) e.________Participation as a citizen in the affairs of your community
(28) f.________Participation in activities directed toward national or international betterment
(29) g.________Other (please secify)_______________

What job or starting position would you most ideally want to enter when you first graduate from school and begin your working career? (specify)

(30-31) ______________________________________

Realistically, what sort of a position do you expect when you first graduate?

(32-33) ______________________________________

(34) If your highest aspiration should be realized, what kind of position would you like to hold at the peak of your career.

____

Most students have some opinions of what their ideal job ought to be like and what requirements it ought to satisfy. Some of these characteristics are listed below. As you read the list, consider to what extent a job or career would have to satisfy each of these requirements before you would consider it ideal.

Indicate its importance for you by circling "H" for high, "M" for medium, and "L" for low.

		HIGH (1)	MEDIUM (2)	LOW (3)
(35)	a. Provide me an opportunity to use my special abilities or aptitudes.	H	M	L
(36)	b. Provide me with a chance to earn a good deal of money.	H	M	L
(37)	c. Permit me to be creative and original.	H	M	L
(38)	d. Give me social status and prestige.	H	M	L
(39)	e. Give me an opportunity to work with people rather than things.	H	M	L
(40)	f. Enable me to look forward to a stable, secure future.	H	M	L
(41)	g. Leave me relatively free of supervision by others.	H	M	L
(42)	h. Give me a chance to exercise leadership.	H	M	L
(43)	i. Provide me with adventure.	H	M	L
(44)	j. Give me an opportunity to be helpful to others.	H	M	L

Realistically, the job or career one actually selects may not meet all one's requirements for an ideal job. Indicate the degree to which you expect realistically to find these characteristics in the career you have selected or intend to select by circling "H" for high, "M" for medium, and "L" for low.

I realistically expect the job that I select to:

		HIGH (1)	MEDIUM (2)	LOW (3)
(45)	a. Provide me an opportunity to use my special abilities or aptitudes.	H	M	L
(46)	b. Provide me with a chance to earn a good deal of money.	H	M	L
(47)	c. Permit me to be creative and original.	H	M	L
(48)	d. Give me social status and prestige.	H	M	L
(49)	e. Give me an opportunity to work with people rather than things.	H	M	L
(50)	f. Enable me to look forward to a stable secure future.	H	M	L
(51)	g. Leave me relatively free of supervision by others.	H	M	L
(52)	h. Give me a chance to exercise leadership.	H	M	L
(53)	i. Provide me with adventure.	H	M	L
(54)	j. Give me an opportunity to be helpful to others.	H	M	L

(1-6 see above)

7 ___2________

When you think of the qualities that will get a young person ahead in the field you have chosen, which of the following ones would you say are essential: (Circle your answers.)

(8)	1. An ability to express yourself
(9)	2. A special talent or aptitude
(10)	3. Luck
(11)	4. Leadership ability
(12)	5. Ability to get people to like you
(13)	6. Understanding of other people
(14)	7. Good grounding in basic theory
(15)	8. Practical knowledge of facts in your field
(16)	9. Ability to convince and persuade other people
(17)	10. Devotion to the work
(18)	11. High degree of intelligence
(19)	12. Knowledge of special techniques
(20)	13. Lots of hard work and effort
(21)	14. Knowing influential people
(22)	15. Having social poise or "know how"
(23)	16. Having capital or access to it
(24)	17. Organizing and administrative ability

(25) Which of the following statements best describes the way you feel about the career or job you have chosen? (Circle the most appropriate answer.)

1. It's the only career that could really satisfy me.
2. It's one of several careers which I could find almost equally satisfying.
3. It's not the most satisfying career I can think of, everything considered.
4. It's a career I decided on without considering whether I would find it the most satisfying.

When you think of the following list of qualities, will you indicate three that are most characteristic of you and another three that are least characteristic. Indicate your response for most characteristic by circling three responses in the first column and for least characteristic by circling three responses in the second column.

	M.C.	L.C.	
(26)	1	1	The ability to express myself
(27)	2	2	A special talent or aptitude
(28)	3	3	Luck
(29)	4	4	Leadership ability
(30)	5	5	Ability to get people to like me
(31)	6	6	Understanding of other people
(32)	7	7	Good grounding in basic theory
(33)	8	8	Practical knowledge of facts in my field
(34)	9	9	Ability to convince and persuade other people
(35)	10	10	Devotion to my work
(36)	11	11	High degree of intelligence
(37)	12	12	Knowledge of special techniques
(38)	13	13	Willingness to work hard
(39)	14	14	Know influential people
(40)	15	15	Have social poise or "know how"
(41)	16	16	Have capital or access to it
(42)	17	17	Organizing and administrative ability

Ideally, how important should each of the following be for doing well in your chosen career or profession?

Indicate your opinion by circling "H" for high importance, "M" for medium importance, and "L" for low importance.

			HIGH (1)	MEDIUM (2)	LOW (3)
(43)	a.	good appearance	H	M	L
(44)	b.	warm and pleasing personality	H	M	L
(45)	c.	dedication to profession	H	M	L
(46)	d.	high intelligence	H	M	L
(47)	e.	skillful management of time	H	M	L
(48)	f.	scientific curiosity	H	M	L
(49)	g.	integrity	H	M	L
(50)	h.	ability to think in an organized way	H	M	L
(51)	i.	research ability	H	M	L
(52)	j.	ability to get along with people	H	M	L
(53)	k.	recognition of own limitations	H	M	L
(54)	l.	getting real enjoyment from job	H	M	L
(55)	m.	ability to remember facts and memorize details	H	M	L
(56)	n.	ability to cope with theoretical problems	H	M	L
(57)	o.	ability to cope with practical problems	H	M	L
(58)	p.	interest in politics and world affairs	H	M	L
(59)	q.	ability to concentrate all your efforts on your work	H	M	L
(60)	r.	interest in emotional problems of people	H	M	L
(61)	s.	manual dexterity (with instruments, tools, machines etc.)	H	M	L
(62)	t.	desire to help people	H	M	L
(63)	u.	knowledge of physical science	H	M	L
(64)	v.	learning as much as you can in your four years at Northwestern	H	M	L
(65)	w.	ability to remain relaxed rather than to be overly tense and nervous about your work	H	M	L
(66)	x.	readiness to assume responsibility	H	M	L

(1-6 see above)

7 3

Realistically, what you expect it will actually take to get ahead in your chosen career may not coincide with what you think is ideal.

Indicate what you think it will realistically take in order to succeed in your chosen career by circling "H" for highly important, "M" for medium importance, and "L" for low importance.

			HIGH (1)	MEDIUM (2)	LOW (3)
(8)	a.	good appearance	H	M	L
(9)	b.	warm and pleasing personality	H	M	L
(10)	c.	dedication to profession	H	M	L
(11)	d.	high intelligence	H	M	L
(12)	e.	skillful management of time	H	M	L
(13)	f.	scientific curiosity	H	M	L
(14)	g.	integrity	H	M	L
(15)	h.	ability to think in an organized way	H	M	L
(16)	i.	research ability	H	M	L
(17)	j.	ability to get along with people	H	M	L
(18)	k.	recognition of own limitations	H	M	L
(19)	l.	getting real enjoyment from job	H	M	L
(20)	m.	ability to remember facts and memorize details	H	M	L
(21)	n.	ability to cope with theoretical problems	H	M	L
(22)	o.	ability to cope with practical problems	H	M	L
(23)	p.	interest in politics and world affairs	H	M	L
(24)	q.	ability to concentrate all your efforts on your work	H	M	L
(25)	r.	interest in emotional problems of people	H	M	L
(26)	s.	manual dexterity (with instruments, tools, machines, etc.)	H	M	L
(27)	t.	desire to help people	H	M	L
(28)	u.	knowledge of physical science	H	M	L
(29)	v.	learning as much as you can in your four years at Northwestern	H	M	L
(30)	w.	ability to remain relaxed rather than to be overly nervous and tense about your work	H	M	L
(31)	x.	readiness to assume responsibility	H	M	L

(32) Read through the statements below and circle the number beside the alternative which fits you best.

a. Once in my life I would like to
   1. develop a valid scientific theory
   2. discover a satisfactory principle of ethical conduct
   3. invent a marketable product
   4. convince a legislature to enact one of my views into law

b. I would like a job where
   1. I could express my social views through my work
   2. I could organize the thinking in my field in a systematic way
   3. I could discover my true potentialities
   4. I could do work of practical importance

c. I am filled with awe when I consider the lives of
   1. Vincent Van Gogh, Mahatma Gandhi, Albert Schweitzer
   2. Charles Kettering, Andrew Carnegie, Winston Churchill
   3. Louis Pasteur, Woodrow Wilson, Abrahám Lincoln
   4. Frank Lloyd Wright, John Dewey, Albert Einstein

d. In my spare time, I would like to
   1. Teach woodcraft to a Boy Scout troop
   2. Participate in a campaign for better schools
   3. Discuss and evaluate different political systems
   4. Learn about psychoanalysis

e. Everyone is a little of everything, but by and large, I am mostly

   1. practical
   2. idealistic
   3. thoughtful
   4. sensitive

(33) How important is it for you to have plans for the future rather clearly known to you in advance? (Circle the number of your answer.)

1. Very important
2. Fairly important
3. Not very important
4. Very unimportant

(34) How important to you personally is it to get ahead in life?

1. Very important
2. Fairly important
3. Not very important
4. Very unimportant

(35) If you had your choice, which of the following would you most like to be? (circle only one)

1. Independent
2. Successful
3. Well liked

(36) How important is it to you to know how well you are doing academically in comparison to the rest of your classmates?

1. Very important
2. Fairly important
3. Not very important
4. Very unimportant

III

Listed below are some factors which might have influenced your decision to go to college (regardless of the school you chose). Please circle the number in the appropriate column which best describes the influence of each factor for you personally.

	Factor	Great Influence	Some Influence	No Influence
(37)	To provide me with skills for entering my chosen field or profession.	1	2	3
(38)	An intrinsic interest in learning more about the subject matter in my field	1	2	3
(39)	Wanted to continue my general intellectual growth without preference for any specific career plans.	1	2	3
(40)	To avoid being stuck at a low level in a field where a degree is essential for promotion or getting good jobs.	1	2	3

Note: In the following questions you will be asked for some opinions about the professional program of studies you are now taking and will soon complete. In answering these questions think of all the courses you have taken as part of your undergraduate program.

A.

Now that your undergraduate program of studies is about to come to an end, you probably have some idea of what it would have taken to make your program ideal. A list of possible features of an undergraduate program are listed below in a series of scales. As you read the list, consider to what extent your curriculum would have had to possess these characteristics before you would have considered it ideal. If you have changed your curriculum since you were a sophomore, will you keep primarily in mind the program you are presently taking. To indicate your answers, read the captions at both ends of each scale to get an idea of its meaning. Then circle a number which best represents how you feel. Just use your first impression and feel free to circle any number on the scale. Please do not mark in between the numbers.

(41) 1. Ideally my curriculum should have

Been concerned mostly with theory	1	2	3	4	5	6	7	8	Emphasized practica applications of the material covered

(42) 2. Ideally my curriculum should have

Provided broad and general knowledge of the field	1	2	3	4	5	6	7	8	Related directly to the kind of work I will be doing

(43) 3. Ideally my curriculum should have

Provided me with considerable freedom for choice amongst electives	1	2	3	4	5	6	7	8	Provided me with a well-laid-out progr in which fewer choi were necessary

(44) 4. Ideally my curriculum should have

Stuck to courses that would prepare me for my chosen profession	1	2	3	4	5	6	7	8	Prepared me for my broad responsibilit as a citizen in add tion to professiona preparation

(45) 5. Ideally my curriculum should have

Emphasized the ability to think logically and abstractly	1 2 3 4 5 6 7 8	Emphasized facts and techniques that have direct application

(46) 6. Ideally my curriculum should have

Been difficult enough to require real effort on my part	1 2 3 4 5 6 7 8	Been easy enough to leave me with free time for other activities

(47) 7. Ideally my curriculum

Should have taught me how to express myself and communicate effectively	1 2 3 4 5 6 7 8	Didn't need to emphasize the skills of expression and communication

(48) 8. Ideally my curriculum should have

Helped me see how my separate courses fit together into a larger whole	1 2 3 4 5 6 7 8	Left it to me to fit together my separate courses into a larger whole

(49) 9. Ideally my curriculum

Should have placed emphasis on understanding people and how they interact	1 2 3 4 5 6 7 8	Didn't need to emphasize understanding people and how they interact

(50) 10. Ideally my curriculum

Should have helped me prepare for taking on responsibility in management and administration	1 2 3 4 5 6 7 8	Didn't need to prepare me for taking on responsibility in management and administratio

(51) 11. Ideally my curriculum should have

Stuck to an emphasis on career and professional preparation	1 2 3 4 5 6 7 8	Had significant emphasis of broad and general interest like literature, philosophy, social science, history, etc.

(52) 12. Ideally my chosen curriculum should have

Prepared me for understanding some of the new developments that are taking place in contemporary society	1 2 3 4 5 6 7 8	Stuck to techniques of known usefulness and established validity

(53) 13. Ideally my chosen curriculum should have

Provided me with an opportunity to specialize within the field	1 2 3 4 5 6 7 8	Emphasized a broad coverage of the entire field

B

Realistically, the curriculum you have been taking may not have satisfied all your requirements for what would have been ideal. Below are listed a series of scales for describing your curriculum. As you read this list, will you consider to what extent this program actually satisfied or is satisfying each of these requirements. Indicate your opinions by circling the number which best represents how you feel.

(54) 1. My chosen curriculum

Is concerned mostly with theory	1 2 3 4 5 6 7 8	Emphasizes practical applications of the material covered

(55) 2. My chosen curriculum

Provides broad and general knowledge of the field	1 2 3 4 5 6 7 8	Relates directly to the kind of work I will be doing

(56) 3. My chosen curriculum

Provides me with considerable freedom for choice amongst electives	1 2 3 4 5 6 7 8	Provides me with a well-laid-out program in which few choices were necessary

(57) 4. My chosen curriculum

Sticks to courses that prepare me for my chosen profession	1 2 3 4 5 6 7 8	Prepares me for my broad responsibilities as a citizen in addition to professional preparation

(58) 5. My chosen curriculum

Emphasizes the ability to think logically and abstractly	1 2 3 4 5 6 7 8	Emphasizes facts and techniques that have direct application

(59) 6. My chosen curriculum

Is difficult enough to require real effort on my part	1 2 3 4 5 6 7 8	Is easy enough to leave me with free time for other activities

(60) 7. My chosen curriculum

Teaches me how to express myself and communicate effectively	1 2 3 4 5 6 7 8	Does not emphasize the skills of expression and communication

(61) 8. My chosen curriculum

Helps me see how my separate courses fit together into a larger whole	1 2 3 4 5 6 7 8	Leaves it to me to fit together my separate courses into a larger whole

(62) 9. My chosen curriculum

Places some emphasis on understanding people and how they interact	1 2 3 4 5 6 7 8	Does not emphasize understanding people and how they interact

(63) 10. My chosen curriculum

Helps prepare me for taking on responsibility in management	1 2 3 4 5 6 7 8	Does not prepare me for taking on responsibilities in management and administration

(64) 11. My chosen curriculum

Sticks to an emphasis on career and professional preparation	1 2 3 4 5 6 7 8	Has a significant emphasis on subjects of broad and general interest like literature, philosophy, science, history, etc.

(65) 12. My chosen curriculum

Prepares me for understanding some of the new developments that are taking place in contemporary society	1 2 3 4 5 6 7 8	Sticks to techniques of known usefulness and established validity

(66) 13. My chosen curriculum

Provides me with an opportunity to specialize within the field	1 2 3 4 5 6 7 8	Emphasizes a broad coverage of the entire field

IV

(1-6) The question that follows has to do with your feelings and attitudes about many kinds of work. The only right answers are frank opinions about the following list of occupations.

Fill out your answers as follows:
Beside each occupation in the list, you will find two possible responses: a "plus" or a "minus"

1. indicate the occupations which interest or appeal to you by circling the "plus" in the appropriate column.
2. indicate those occupations which you dislike or find uninteresting by circling the "minus"

The IBM column numbers are the same as the item numbers for these responses.

(8)	+	-	Crane Operator
(9)	+	-	Bank Teller
(10)	+	-	Clinical Psychologist
(11)	+	-	Poet
(12)	+	-	Hotel Manager
(13)	+	-	Engineer
(14)	+	-	Private Investigator
(15)	+	-	Mountain Climber
(16)	+	-	Aeronautical Design Engineer
(17)	+	-	Automobile Mechanic
(18)	+	-	Social Worker
(19)	+	-	Anthropologist
(20)	+	-	Juvenile Delinquency Expert
(21)	+	-	Cost Estimator
(22)	+	-	Political Campaign Manager
(23)	+	-	Music Critic
(24)	+	-	U. N. Official
(25)	+	-	Test Pilot

(26) + - Children's Clothing Designer
(27) + - Physician
(28) + - Author
(29) + - Zoologist
(30) + - Social Science Teacher
(31) + - Actor
(32) + - Television Producer
(33) + - Free Lance Writer
(34) + - Supreme Court Judge
(35) + - Ranch Hand (Cowboy)
(36) + - Interior Decorator
(37) + - Lawyer
(38) + - High School Teacher
(39) + - Scientific Research Worker
(40) + - Personal Counselor
(41) + - Bank Examiner
(42) + - Business Executive
(43) + - Art Critic
(44) + - Criminal Lawyer
(45) + - Explorer
(46) + - Stock Broker
(47) + - Psychiatrist
(48) + - Radio Operator
(49) + - Personnel Manager
(50) + - Cociliator (Employer-Employee Relations)
(51) + - Financial Analyst
(52) + - Master of Ceremonies
(53) + - Playwright
(54) + - Prosecuting Attorney
(55) + - Blaster (Dynamiter)
(56) + - Factory Foreman
(57) + - Carpenter
(58) + - Surveyor
(59) + - Marriage Counselor
(60) + - Physicist
(61) + - Rehabilitation Worker
(62) + - Manufacturer's Representative
(63) + - Composer
(64) + - Congressional Investigator
(65) + - Stunt Man (motion picture)
(66) + - Army General
(67) + - Banker
(68) + - Experimental Psychologist
(69) + - Ward Attendant
(70) + - Route Salesman
(71) + - Scientific Authority
(72) + - Insurance Clerk
(73) + - Independent Research Scientist

V

(1-6)

7____5______

A number of statements about some social and personal questions are given below: Indicate your own personal opinion by circling the one alternative that best represents how much you agree or disagree with the statement. This is not a test in which there are right and wrong answers. People will differ in their reactions to these statements. What is wanted and valuable here is your own personal reaction. Please be sure you answer each and every item.

A -- Agree Strongly
a -- Agree Somewhat
? -- Undecided
d -- Disagree Somewhat
D -- Disagree Strongly

(8) 1. Life is chaotic, without direction or meaning.

A a ? d D

(9) 2. There is great pleasure in giving a job all you've got.

A a ? d D

(10) 3. It isn't necessary to be a chameleon and be all things to all people in order to get ahead in life.

A a ? d D

(11) 4. Many people don't have what it takes to finish a job.

A a ? d D

(12) 5. We arrive at wisdom thru our intimicies with other people.

A a ? d D

(13) 6. Familiarity breeds contempt.

A a ? d D

(14) 7. The major decisions a person makes are guided by the plans he has for the future.

A a ? d D

(15) 8. The worst thing that can happen to a person is to turn out to be a nobody.

A a ? d D

(16) 9. If given a chance, most people would take advantage of you.

A a ? d D

(17) 10. A close physical relationship in marriage plays an important part in one's happiness.

A a ? d D

(18) 11. People wouldn't do any work at all if they didn't have to.

A a ? d D

(19) 12. It is best not to become very intimate with another person, because it always leads to frustration and disappointment.

A a ? d D

(20) 13. One doesn't depend on others to tell him who he is and where he is going.

A a ? d D

(21) 14. The man who walks in solitude is the one who experiences the greatest enjoyments of which nature is capable.

A a ? d D

(22) 15. Although there is a lot of talk nowadays about the loss of individuality in our mass society, most of us feel that we are distinct individuals in our own right.

A a ? d D

(23) 16. We all need the love of those who are close to us.

A a ? d D

(24) 17. An individual should adjust his thinking about himself to concur with the views of the majority.

A a ? d D

(25) 18. The most difficult task for a person is to decide what kind of life they want.

A a ? d D

(26) 19. If you are not getting results on a job, it is easy to quit before you expend too much energy.

A a ? d D

(27) 20. A person can be confident of getting recognition from those who count.

A a ? d D

(28) 21. What really matters is what other people think, it is not enough just to be sure of oneself.

A a ? d D

(29) 22. A man can place his trust in the future.

A a ? d D

(30) 23. Most of us are not pleased with the "type" of person we appear to be to others.

A a ? d D

(31) 24. It is foolish to worry about your own capabilities because most of us can be trusted to come through when it really counts.

A a ? d D

(32) 25. Most people can plan their lives so that they get what they want.

A a ? d D

(33) 26. In times like these, no one can trust what the future will bring.

A a ? d D

(34) 27. At times, nearly everyone would like to be someone else.

A a ? d D

(35) 28. Most young people today feel it is foolish to do more work than is necessary to "get by".

A a ? d D

(36) 29. Being too involved with someone else takes something away from yourself.

A a ? d D

(37) 30. The only thing to trust is mistrust.

A a ?d D

(38) 31. It is better to have a few close friends than many acquaintances.

A a ? d D

(39) 32. A man can be sure of himself regardless of the opinions of others.

A a ? d D

(40) 33. Most of us have a fairly good idea what will be ten years from now.

A a ? d D

(41) 34. It isn't necessary to be always proving yourself to others, it is enough to know it yourself.

A a ? d D

(42) 35. Distant goals deserve more effort than momentary pleasures.

A a ? d D

(43) 36. Most honest people admit to themselves that they have sometimes hated their parents.

A a ? d D

(44) 37. It is rarely safe to trust a stranger.

A a ? d D

(45) 38. A person who can do a job doesn't have to feel inferior about anything.

A a ? d D

(46) 39. The present has meaning in terms of the future.

A a ? d D

(47) 40. What a bore it is, waking up in the morning always the same person.

A a ? d D

(48) 41. Most people don't know where they are headed.

A a ? d D

(49) 42. When you come right down to it, most people will help you when you are in trouble.

A a ? d D

(50) 43. A man should work hard when he works.

A a ? d D

(51) 44. The older you get, the more you realize that you have to trust other people.

A a ? d D

(52) 45. Most people know who they are and where they belong.

A a ? d D

(53) 46. It is the exceptional person who plans for the future.

A a ? d D

(54) 47. Even when they are quite alone, most people worry a great deal about what others think of them.

A a ? d D

(55) 48. It is only human to worry a lot about finding yourself.

A a ? d D

VI

(1-6) Now that your undergraduate program is nearing its conclusion, you've probably made up your mind about what aspects of Northwestern you've liked or disliked. Indicate your opinions by circling the number below that best represents how you feel about having been a student at Northwestern.

7___6______

(8) 1. Concerning my decision to come to Northwestern,

I'm extremely sorry that I made that decision	1 2 3 4 5 6 7 8	I'm extremely glad that I made that decision

(9) 2. When I think of the administration at Northwestern,

All considered, they do a very good job of running the school	1 2 3 4 5 6 7 8	All considered, they do a very poor job of running the school

(10) 3. Concerning my decision to enter my chosen field of study,

I'm extremely sorry that I made that decision	1 2 3 4 5 6 7 8	I'm extremely glad that I made that decision

(11) 4. When I think of the faculty of my department,

All considered, they do a very poor job in carrying out the undergraduate program	1 2 3 4 5 6 7 8	All considered, they do an excellent job in carrying out the undergraduate program

(12) 5. When I think of my program of studies,

I'm quite disappointed with its content and organization	1 2 3 4 5 6 7 8	I'm very pleased with its content and organization

(13) 6. When I think of the student body at Northwestern,

I'm proud to have been associated with them	1 2 3 4 5 6 7 8	I've been quite disappointed with my associations with them

(14) 7. When you think of the overall administration of Northwestern, what changes do you think are most needed?

____

____

____

(15) 8. When you think of your department program and the faculty, what changes do you think are most needed?

____

____

____

(16) 9. When you think of the undergraduate student body and student activities at Northwestern, what changes do you think are most needed?

____

____

____

(17) 10. In developing this questionnaire, we have tried to cover all important aspects of undergraduate life at Northwestern. Do you think that this questionnaire gave you a good chance to express your opinions about your four years at Northwestern?

1. Yes
2. No

If there are any additional comments or suggestions you want to make, please add them below.

____

____

____

____

____

APPENDIX B

STUDENT INTERVIEW

FORM II

Interviewer: ____________________

Date: ____________ **Time:** ____________

Code Number: ____________

Student Interviewee's Name: ____________________

Code Number: ____________

INTERVIEW SCHEDULE

Form II

OCCUPATION

1. At the present time, what are your plans for a career after you've completed your education?
   (After graduate school and military service)

2. What precisely do you think you'll be doing in this kind of work?

3. What makes this career (these plans) appeal to you?

4. When you think of the career you have chosen, what do you think there might be about it that you won't like?

5. Suppose a person runs into things in his career that he doesn't like. What do you think he can do in order to deal with them? (i.e., conditions he doesn't like.)

   a) Would you do the same thing under those circumstances?

   (Circle one)
   Yes No

6. In addition to your chosen career, what other career possiblities have you seriously considered?

7. What attracted you to these other careers?

8. What made you decide to give these up in favor of your present plans?

9. Thinking of your chosen career, what do you think it will take to be successful?

a) Why do you think that some people are not successful?

b) What sort of success do you expect for yourself?

10. Suppose you think back to about this time a year ago. Have your plans for your career changed any during the period of time since then?

(Circle One)
Yes No

(How convinced are you now that this is what you want to do?)

A. If Yes: In what ways?

1) How have things been working out since you made this change?

2) For what reasons did you make this change?

3) Before you made the change, did you discuss it with your family?

(Circle One)
Yes No

4) What reaction did your family have to your making this change?

B. If No: Since your career plans have not changed, has anything happened in the past year to make you all the more convinced about what you want to do.

(If yes: What sorts of things?)

1) If you were to become interested in another career, how would your family be likely to react?

11. Some students feel that their education is really a very important part of preparation for their careers and adult life. Others are much less certain about the value of an education. Thinking only of your own feelings, which number on this scale best describes how you feel about the value of a college education?

------ PRESENT SCALE ------ (Value Chosen: ______)

a) Why do you feel that way about a college education? (Could you give reasons for that particular value?)

12. In what ways have your college experiences so far been either disappointing or frustrating?

13. In looking back at their freshmen year, many students feel that it was too difficult, and they're particularly happy that it's behind them. Speaking for yourself, how do you feel about the level of difficulty of your freshman year?

    a) Why do you feel that way?

14. In thinking about their courses, some students believe that it's important to plan rather far ahead while others believe that there are limits to how much planning one can do for the future. What are your views about the amount of planning that one ought to do (for his career)?

    a) Why do you feel that way?

15. Have you ever met an older person whom you admired and felt that here was the kind of a person that you would like to be? (when you were older)

    (Circle One)
    Yes No

    a) What was it that you admired about this person?

    (Who was this person?)

16. Have you ever met an adult who was the kind of person that you would definitely not like to be?

    (Circle One)
    Yes No

    a) What was it that you disliked about this person?

    (Who was this person?)

EDUCATION

17. In what school are you now enrolled?

18. What major (department) have you chosen?

19. What do you particularly like about the department or major you have chosen?

20. Thinking ahead to the courses you will be taking, which value in this scale best describes what you think they'll be like?

-----PRESENT SCALE------ (Value Chosen:____________)

a) Why do you feel that way?

21. Sometimes a student runs into something about the school or his major that he doesn't like. What do you think he can do in order to handle something he finds unpleasant?

a) Would you do the same thing in such a situation?

22. What other departments or majors have you seriously considered? (CLASSIFY IF THEY INVOLVE A CHANGE IN SCHOOL OR DEPARTMENT.)

a) What attracted you to these other possibilities?

b) Why did you decide to give them up in favor of your present plan?

23. Thinking only of the courses required in your major, what do you think it takes in order to be successful academically?

a) Why do you think that some students are not successful in these courses?

b) What sort of success do you expect for yourself? (in your major)

24. In any program of studies, there are always certain requirements that students have to satisfy in order to graduate. Which value on this scale best describes how you feel about the requirements in your department or program of study?

----- PRESENT SCALE ----- (Value Chosen:__________)

a) Why do you feel this way?

25. Suppose you think back over the period of time you have been at Northwestern. Has your choice of a department or major changed any in that period of time?

(Omit if already discussed in previous section).

(Circle One)
Yes No

a) If Yes: In what ways?

1. For what reasons did you make the changes?

2. How have things worked out?

3. What reactions did your family have to these changes?

26. What have you liked about your professors at Northwestern?

a) What have you found disappointing?

27. If a student runs into some difference or disagreement with a professor what do you think he can do to handle the situation?

a) Would you do the same thing in such a set of circumstances?

28. Some students find that their professors sympathize with their choice of a career. Others may feel that some professors are not sympathetic and don't place much value on the student's chosen career. How do you think most of your professors feel about your chosen career?

a) Are there any ways in which they are not particularly sympathetic?

29. It's certainly true that professors vary a good deal in the way in which they run their classes. Some like to have a lot of control while others are quite flexible about the way things are run. Which value on this scale best describes how you feel about the way classes are usually run at Northwestern?

----- PRESENT SCALE ----- (Value chosen:_________)

a) Why do you feel this way?

FAMILY

30. Where is your home?

31. Do you have any brothers or sisters?

_______ Yes _______ No (Check one)

If Yes:
Please list your brothers and sisters in order of birth. Will you also include any who are now deceased? Be certain to include yourself in the appropriate place.

SEX	YEAR OF BIRTH (approx.)	IF DEAD, AGE AT DEATH	EDUCATION HIGHEST GRADE OR DEGREE	OCCUPATION

32. Which members of your family are now living at home? (Include father and mother.)

(If father or mother deceased)
a) How long ago did your father (mother) die?

33. What does your father (mother if father deceased or not main support) do for a living?

34. Would you give me a little thumbnail sketch of what your father and mother are like? Let's take them one at a time.

a) What's your father like?

b) What's your mother like?

35. How much interest does your family have in what you're doing at school? (In what ways are they particularly interested?)

36. We've noticed that some students like yourself feel closer to one parent than to the other. To which one of your parents do you feel the closest?

(Omit if one parent deceased).

37. In any family, it's often true that one parent has more to say when family decisions are being made than the other. In your family, which one of your parents has more to say when a family decision is being made -- your father or your mother?

38. When talking to students, we've found that some feel that their parents have been very helpful in their work at college and in their planning for a career, while others feel that their parents have been somewhat of a hinderance. Which number of this scale best describes how you feel?

----- PRESENT SCALE ----- (Value Chosen:__________)

a) Why do you feel that way?

39. Probably every student at some time or another finds himself in disagreement with his parents. Under what conditions are you likely to find yourself in disagreement with your parents?

40. How do you usually handle things when you disagree with your parents?

41. Many students notice that, after they've entered college, their parents treat them differently than when they were in high school. What sorts of changes, if any, have you noticed in the ways your parents treat you as compared to when you were in high school?

42. What sorts of things do they still expect of you, now that you're in college?

43. In what ways do they seem to expect something from you that is either burdensome or annoying? (things that you don't particularly like to do)

44. Most students say that they notice that there are certain things they do that please their parents a good deal while there are other things they do that their parents may dislike or find disturbing.

a) What sorts of things are there that you might do that would be particularly pleasing to your parents?

b) What sorts of things would they find particularly disturbing?

45. Most parents feel it necessary to set up rules for their children's behavior. Why do you think parents set up rules?

a) Are there any kinds of rules that you feel you would never break? (What are they?)

STUDENT LIFE

46. Where do you live when school is in session?

47. To what organizations do you belong?

48. In what extracurricular activities do you take part?

49. Many people have different views on the value of extracurricular activities. Some believe that they plan a very important part in a student's education while others view them as interfering with a good education. Which number on this scale best describes how you feel?

----- PRESENT SCALE ----- (Value Chosen:_________)

50. In what ways do you spend your free time?

a) About how much time during a week do you get to spend in informal or social activities?

51. When you have free time, with whom are you likely to spend it?

52. What do you think of the students you've met at Northwestern? What do you particularly like or dislike about them?

53. Thinking of students in the different schools at Northwestern, in what ways would you say that they're all pretty much alike?

54. What differences are particularly noticeable, when you compare the students in one school with those in another?

55. Thinking of the campus as a whole, how friendly a place is it? How easy is it for a student to get to know people?

a) Why do you feel that way?

56. Thinking of the students you know pretty well, what reactions do they have to your choice of a career?

57. What do they think of your major and of your department?

58. In any large group of people, most of us expect to run into situations that we don't like, situations that we would rather not have occur. Thinking only of student life at Northwestern, what sorts of situations have you encountered that you don't like?

59. Suppose a student runs into situations on the campus of which he doesn't approve. What do you think he can do when such situations arise?

a) Would you react in the same way under similar circumstances?

60. Most of us at some time or other get into a situation in which we feel we're about to lose our temper, to lose our control. In what sorts of situations are you ever likely to feel that way?

61. Thinking only of school work and your educational plans, some students find that their friends are a help and others find their friends to be somewhat of a hinderance. Which number on this scale best describes how you feel?

----- PRESENT SCALE ----- (Value Chosen:_______)

a) Why do you feel this way?

62. Assuming that we'd all like to see Northwestern improve over the next few years, what changes in the University would you most like to see?

STUDENT INTERVIEW

FORM III

Interviewer: ______________________________

Date: ____________________ Time: ____________________

Student Interviewee's Name: ______________________

Code Number: ______________

INTERVIEW SCHEDULE

FORM III

Introduction: A year ago, we asked you some questions about your plans for a career and your views about Northwestern. Today, I'll be asking you some of the same questions in order to find out if your views have changed any and I may be asking you for some other information that we didn't cover last time.

OCCUPATION

1. What are you planning to do for a living after you graduate? (After graduate school and military service)

2. Why do you want to do this? (Pursue this career)

3. What major drawbacks do you see to this type of career?

4. What do you think are your strengths and weaknesses for making a success of your chosen career?

   Strengths

   Weaknesses

5. Suppose you think back to about this time a year ago. Have your plans for your career changed any during this period of time?

   (Circle One)

   Yes No

   A. If Yes In what ways?

   B. If No Since your career plans have not changed, has anything happened in the past year to make you all the more convinced about what you want to do.

   (If Yes: What sorts of things?)

6. Some students feel that their education is really a very important part of preparation for their careers and adult life. Others are much less certain about the value of an education. Thinking only of your own feelings, which number on this scale best describes how you feel about the value of a college education?

----- PRESENT SCALE ----- (Value Chosen:__________)

a) Why do you feel that way about a college education? (Could you give reasons for that particular value?)

7. Now that you've made some career plans, how convinced are you that this is really what you want to do? Which number on this scale best describes how you feel?

----- PRESENT SCALE ----- (Value Chosen:__________)

a) Why do you feel that way?

8. In what ways have your college experiences been either disappointing or frustrating?
(What about this past year?)

9. Have you ever met a professor at Northwestern whom you admired and felt that here was the kind of a person that you would like to be?
(when you were older)

(Circle one)
Yes No

a) What was it that you admired about this person?

(What did this person teach?)

10. Have you ever met a professor at Northwestern who was the kind of person that you would definitely not like to be?

(Circle One)
Yes No

a) What was it that you disliked about this person?

(What did this person teach?)

11. In what school are you now enrolled?

12. What major (department) have you chosen?

13. What do you particularly like about the department or major you have chosen?

    a) Are there any ways in which your major is somewhat of a disappointment? (What are they?)

14. How satisfied are you with your choice of a department? Which value on this scale best describes how you feel?

    ----- PRESENT SCALE ----- (Value Chosen:__________)

    a) Why do you feel that way?

15. Thinking only of your fellow students, what does it take in order to earn high status with them?

    A. What about low status? (lack of status)

    B. In what ways do you agree or disagree with their ideas about status?

16. Considering the views of the faculty, what does a student need in order to earn high status with them?

    A. Low status?

    B. In what ways do you agree or disagree with their ideas about status?

17. If you compare how you were treated by the faculty when you were a freshman with the way you are treated now, do you think any changes have taken place?

    (Circle One)
    Yes No

GENERAL

18. Looking back over your experiences at Northwestern, how satisfied do you feel with your decision to come here? Which number on this scale best describes how you feel?

    ----- PRESENT SCALE ----- (Value Chosen:__________)

    Why do you feel this way?

19. Suppose someone in your family - brother or sister - or a very close friend were thinking about coming to Northwestern. Which value on this scale best describes the advice you would give?

----- PRESENT SCALE ----- (Value Chosen:________)

Why do you feel this way?

20. How satisfied do you think your parents are with your decision to come to Northwestern? Which number on this scale best describes how you think they feel?

----- PRESENT SCALE ----- (Value Chosen:__________)

Why do they feel that way?

21. Now that you're in your junior year at Northwestern, in what ways do you think you have changed over the past three years?

a. In what ways have you changed as a person?

b. In what ways have your views changed about politics and political affairs?

c. What about your views of what you want out of life and what you hope to accomplish with your life?

22. Let us suppose that you were asked to describe yourself as a person. Would you give a little thumbnail sketch of yourself - What you are like?

23. Let us suppose that a good friend of yours were asked to describe you. What kind of a sketch of you would he be likely to give?

24. Most of us do reasonably well at handling certain kinds of responsibilities and not so well at handling others. What sorts of responsibilities do you feel you handle rather well?

What sorts of responsibilities do you feel you don't handle very well?

25. Thinking of our parents, most of us notice that there are certain things about them that please us very much while there are other things about them that we may dislike or find disturbing.

    a) What is there about your parents that you find particularly pleasing?

    b) What sorts of things do you dislike or find disturbing?

26. Many people have different views on the value of extracurricular activities. Some believe that they play a very important part in a student's education while others view them as interfering with a good education. Which number on this scale best describes how you feel?
    ----- PRESENT SCALE ----- (Value Chosen:__________)

27. In what ways do you spend your free time?

28. Over the period that you've been here, what sorts of changes have there been in the way you spend your free time?

29. On the average, how much reading are you likely to do each week, in addition to what's required in courses?

    What sorts of things are you likely to read?

30. Thinking of the students at Northwestern, which value on this scale best describes how you feel about them?

    ----- PRESENT SCALE ----- (Value Chosen:__________)

    Why do you feel that way?

31. What do you think about Evanston as a place to live and raise a family?

    a) What do you particularly like about this community?

    b) What do you dislike?

32. Suppose you could start your college career all over again. What would you do differently?